Understanding Organisational Behaviour

Cases and Concepts

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Editors

Kamla Chowdhry
Indian Institute
of Management
Ahmedabad

Sudhir Kakar
Indian Institute
of Management
Ahmedabad

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To our respective teachers
Professor Fritz J. Roethlisberger
and
Professor Abraham Zaleznik

Contents

Introduction 1

Part I Development of a Practitioner: The Case Method

Readings

The Development of a Practitioner and the Case Method 7
Kamla Chowdhry

Territory, Maps and Cases 14
Robert E. Coffey

Self-awareness and Scientific Method 24
George F. F. Lombard

Part II Understanding Individual Behaviour

Readings

Establishing an Identity 37
David E. Berlew

Some Unsolved Problems of the Scientific Career 56
Lawrence S. Kubie

Motivation and Management 75
A. Zaleznik, C. R. Christensen and F. J. Roethlisberger

Cases

Ashok Rajguru 85

Frederick Winslow Taylor 106

Kannan 126

Part III Understanding Two-Person Relationships

Readings

Barriers and Gateways to Communication 141
Carl R. Rogers and F. J. Roethlisberger

The Dynamics of Subordinacy 153
Abraham Zaleznik
Giving and Receiving Feedback 172
John Anderson

Cases
Mr. Hart and Bing 183
Metal Company of India (MECO) 187
Blackman-Dodds 199
Mr. Shekhar 203

Part IV Understanding Behaviour in Groups

Readings
Research Findings in Small Groups 221
Kamla Chowdhry
A Theory of Group Development 232
Warren G. Bennis and Herbert A. Shepard
A Three-Dimensional System for the Analysis of Interaction in Primary Groups 258
Dexter Dunphy

Cases
Uttara Mills (C) 271
Group Work on a Marketing Project 279
Exercise: Group Task 286

Part V Understanding Intergroup Behaviour

Readings
The Management of Interdepartmental Conflict: A Model and Review 293
Richard E. Walton and John M. Dutton
Union–Management Co-operation: A Psychological Analysis 313
Douglas McGregor and Irving Knickerbocker

Cases
Haig Chemical Company (A) 337
Management Analysis Group 356
Ganesh Mills (A) 369
Exercise: Intergroup Conflict Resolution 375

Part VI Understanding Organisation Structures

Readings

Task and Work Group Organisation 379
A. K. Rice
Technology, Territory and Time 387
Eric J. Miller
Organisation for Developmental Tasks: Atomic Energy Commission of India 424
Kamla Chowdhry and Vikram A. Sarabhai

Cases

Superior Slate Quarry (A-D) 447
ECIL: An Organisation in Transition 455
Organisational Choice at Hindustan Lever 467

Part VII Understanding Social-Cultural Environment

Readings

Authority Patterns and Subordinate Behaviour in Indian Organisations 481
Sudhir Kakar
Society and Industrial Work in India: A Case Study 498
N. R. Sheth
Social and Cultural Factors in Management Development 520
Kamla Chowdhry

Cases

Metal Company of India (MECO) (D) 537
Gobardhone Bonamali Bandhopadhya Co. (P) Ltd 548
Alpana Chemicals (A) – (C) 555
Atlas Corporation 567

Part VIII Understanding Change

Readings

How Economic Growth Begins: A Theory of Social Change 577
Everett E. Hagen
Organisational Change as a Generational Problem 592
Kamla Chowdhry

Approaches to Organizational Change 603
Gene W. Dalton, Louis B. Barnes, and Abraham Zaleznik
The Characteristics of a Helping Relationship 611
Carl R. Rogers

Cases

Bhavnath Temple 627
Ajit Verma 630
The Onondaga Metals Company 639
Gopal Cotton Mills Ltd 650
Ahmedabad Textile Industry's Research Association (ATIRA) (A) & (B) 654
List of Readings 669
List of Cases 670

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Introduction

Some thirty years ago, social scientists, especially in the fields of social psychology, social anthropology, clinical psychology, and sociology, began paying increasing attention to organisations as a fruitful place for their studies and investigations. Until then the study of organisations had not been staked out as a special "territory" by any one discipline of the social sciences, so that if a somewhat neutral meeting place had to be found for inter-disciplinary studies, organisations offered an excellent place where the social scientists could get together to study areas of mutual interest and derive useful insights from each other's work. Furthermore, the social scientists could investigate not only the elements of behaviour as traditionally studied in their own disciplines, but also see the influence of the total organisation on the part they studied and vice versa.

The group which had the greatest influence in the growth and development of this new field, *behaviour in organisations*, consisted of three men with somewhat unusual backgrounds—Elton Mayo, whose original training was in medicine, Fritz Roethlisberger who had studied engineering and philosophy, and Lawrence Henderson, a bio-chemist turned sociologist. Around this nucleus a whole school of thought—"human relations"—gradually emerged and though many of the original findings of Mayo and his school have been questioned or modified by subsequent developments, there is little doubt that one of their major contributions was the clinical method they brought to bear on the study of man's behaviour in organisations. The rationale for this clinical approach which emphasised field research and the collection of case material, has been described by Henderson as follows:

> In the complex business of living, as in medicine, *both* theory and practice are necessary conditions of understanding, and the method of Hippocrates is the only method that has ever succeeded widely and generally. The first element of that method is hard, persistent, intelligent, responsible, unremitting labour in the sickroom, not in the library: the complete adaptation of the doctor to his task, an adaptation that is far from being merely intellectual. The second element of that method is accurate observation of things and events, selection, guided by judgment born of familiarity and experience, of the salient and the recurrent phenomena, and their classification and methodical exploitation. The third element of that method is the judicious construction of a theory—not a philosophical theory nor a grand effort of the imagination nor a quasi-religious dogma, but a modest, pedestrian affair or perhaps I had better say, a useful walking stick to help on the way—and the use thereof. All this may be summed up in a word: The physician must have, first, intimate, habitual, intuitive familiarity with things; second, systematic knowledge of things; and third, an effective way of thinking about things.[1]

Thus empirical investigations based on systematic and detailed observations of behaviour in organisations supported by findings of social sciences on human behaviour, provided the basis for building uniformities and concepts, which could be utilised by managers for improved practices, instead of relying on personal experience which was often based on insufficient foundation in fact.

Organisations as compared to other social units have one important characteristic—they are *purposive*, established explicitly for achieving certain objectives and goals. Since the objectives of an organisation cannot be achieved by the individual working independently, there is, in the notion of an organisation, the concept of division of labour, of co-ordination and of hierarchy of authority—in short, the characteristics of a *formal organisation*. A formal organisation contains a blue print of what the people are expected to do, when, where and how. In actual fact, however, when the behaviour of people in organisations is observed, there are differences from the official blue print. The actual activities and interactions of people when working within the formal framework has been called the *informal* organisation. This informal organisation, is influenced by the norms, values, beliefs, and the symbolic and affective worlds that individuals bring with them.

---

[1] L. J. Henderson, "From Introductory Lectures : Sociology 23", *The Journal of Applied Behavioral Science*, Vol. 4, No. 2, 1968.

Human behaviour in organisations is thus determined partly by the requirements of the formal organisation and partly by the *personal systems* of the individuals who are members of these organisations. The behaviour which emerges from an interaction of these elements defines the boundary of the field known as Organisational Behaviour.

The personal systems, though varying from one individual to the other, possess a strong common core in any given culture. This distinctive cultural element in any individual's behaviour is of course a product of his culture's historical development and the patterns of relationships prevailing in some of the other institutions, most notably, the family, in which the individual first learns the desirables and undesirables of behaviour. In any culture there are certain prescribed and customary ways of doing things. As a person grows up in his culture he learns to relate himself to the other persons around him: he learns the kind of behaviour expected of him and what he can expect from others. These norms are a part of the individual's way of life sanctioned by his society. They are the unstated assumptions, the most sacred and cherished beliefs on which behaviour is based. A manager cannot ignore them. Very often he shares these values with the people he is managing. Many of these assumptions are difficult to identify, and even more difficult to express in words. The role and functioning of authority, the nature of peer relationships, the use of competitive methods, ideas of responsibility, integrity, social values—all these influence management practices in a given society. Thus, for example, in the case of Alpana Chemicals (Part IV), the behaviour of senior managers appears some what strange to Western Managers; the Production Director instead of competing for the Chief Executive's position, is persuading the Marketing Director to take over the position ! The relationships convey a lack of competitiveness and the existence of strong emotional ties which are also the characteristics of peer relationships in the traditional Indian joint family. The influence of family, clan or tribal patterns on organisational behaviour and managerial practices in other cultures such as Japan, Turkey, Ghana, Nigeria, etc., is well known, and need not be again stressed.[2] It is this element of cultural relativism which makes the clinical approach, with its emphasis on the collection and analysis of actual cases from organisations in a given culture, especially relevant for training students in the

[2] See, M.Y. Yoshino, *Japan's Managerial System* (MIT Press : Cambridge) 1968; N. Bradburn, "Interpersonal Relations within Formal Organisations in Turkey", *Journal of Social Issues*, 19 : 1 (January 1963), 61-67; S. D. Magnus-George, "Social and Cultural Factors in Management Development in Ghana" unpublished paper read in the *Meeting of Experts on Social and Cultural Factors in Management Development*; held by International Labour office in Geneva 1965; Ademolja Banjo, "Ethnic Conflict in a Business Organisation", unpublished paper read at *Meeting of Experts*, op. cit.

field of organisational behaviour.

This volume then, consists of cases in organisational behaviour and readings in behavioural sciences, primarily intended for the use and training of potential and practising managers in India. It should, however, also prove to be of some interest to students of comparative management. Most of these cases, which are drawn from a variety of organisations, reflect the realities of the Indian situation today. Besides the cases, each section consists of selected readings which provide a conceptual framework, a "walking stick", for the understanding and analysis of the cases included. As students go back and forth between cases and concepts they will develop (we hope) a more skilled approach to the understanding and effective handling of human problems in organisations. The grouping of cases under different headings—individual, two-person relationship, group behaviour, etc., are only meant for the convenience of the instructor and the students. Each case as a description of a concrete situation, contains more than the learning which occurs from applying concepts learnt from a particular section. As the student's skill in the analysis of the cases and his conceptual framework gradually widens, he will find new ways of approaching old cases, exposing their additional dimensions by the application of new concepts.

The cases and readings are also selected from the point of view of what is considered relevant to the young manager in the Indian context. Problems raised by young managers in the classroom or in the sanctity of personal communication are reflected in the choice of both cases and readings.

It is our hope that the learning process that results from the cases and concepts included in this volume will not only increase the student's self-awareness and his understanding of human behaviour, but also sharpen his skills in dealing with organisational problems in the Indian setting.

PART ONE

Development of a Practitioner: The Case Method

CHOWDHRY

Development of a Practitioner and the Case Method

COFFEY

Territory, Maps, and Cases

LOMBARD

Self-awareness and Scientific Method

READINGS

KAMLA CHOWDHRY

Development of a Practitioner and the Case Method

The Objective of this paper is to discuss the development of "practitioners," i.e., people who practice, administer or execute policies, standards, etc., as distinct from the development of social scientists, i.e., people who know about social systems, theories of personality, organization, etc. The difference is one of emphasis, the practitioner being primarily concerned in applying what the social scientists have discovered to the solution of human problems in organizations of which he is an involved member. Because the understanding and skills required in the *application* of knowledge are different from the understanding and skills required in the *acquisition* of knowledge, different teaching and learning methods are considered appropriate in each case.

This paper discusses, first, the kind of learning required in the development of a practitioner and, second, why the case method is the most appropriate method for developing practitioners.

In developing a practitioner, knowledge *per se* would not improve the behaviour of people. There is considerable *prima facie* evidence that the knowledge of psychology and sociology available in books and in the minds of the scientists has not improved, to any great extent, the behaviour of administrators, executives, managers, supervisors, and workers. In developing a practitioner, there seems to be need for emphasizing three kinds of learning: (1) learning to recognize the attitudes and assumptions that we bring to any given situation,

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(2) learning to ask better questions of our experiences, and (3) learning conceptual knowledge which provides a framework for clearer thinking about human behaviour.

The practitioner or the administrator is involved in the situation he is administering either as a leader or as a member of the group. The main difficulty of the practitioner or the administrator in practising or administering is his involvement in the situation. Thus, his own norms and ideals of behaviour get involved; the concept that he has of himself gets involved; the need to survive and to be well thought of gets involved; and his pet theories and ideas get involved. And because all these involvements have a tremendous personal significance, his feelings get involved in a very central way. These feelings need to be recognized, expressed, sorted out, and worked through. There is indeed a very direct relationship between the recognition and working through of one's own feelings with the ability to observe and the skill to deal with the outer world of human beings.

How can the practitioner learn to deal with the often uncomfortable and contradictory feelings which his involvement in the situation produces ?

The understanding of and dealing with one's own feelings form perhaps the most neglected and one of the most difficult aspects of teaching human relations. Most educational systems seem to be based on the assumption that *men* don't (ought not to) indulge in feelings, that feelings will disappear when a person grows up, or when he gains more knowledge. But feelings do not disappear; they only go *underground* and influence the person's perceptions of and relationships with other people.

One of the main tasks of the teacher in developing practitioners is to help the students accept the fact that the possession of feelings is nothing to be ashamed of. And although the teacher does not intrude into the private domain of the students, he does not ignore it either. In fact, when it is accepted that feelings are not *indecent*, many students come to discuss them, especially what they feel about authority, in the privacy of the teacher's office. The provision of such opportunities for discussion is also an integral part of the teaching-learning process of developing a practitioner or an administrator. For unless such feelings are recognized and dealt with, they will raise their ugly head as *facts* in the outer world.

In pointing out the interrelatedness of the inner and the outer world, of feelings and of facts, the case method, which deals with concrete data (not theories and generalizations), seems to be the most promising method. Further, it is our belief that, before students face and deal with their own feelings and the relationship of these to their perceptions, it is easier and less threatening for them to see the same kind of relationship in cases about other people. Gradually, however, he learns to relate his own feelings and experiences to the understanding of the cases.

THE CASE METHOD OF TEACHING

A case is a description of a real situation, of something that actually happened, and of what actual people said, felt, and did in a specific situation. The case does not contain all the facts (no administrator ever has *all* the facts), but it contains facts as perceived by the relevant persons involved in the situation. A case has often been described as a "chunk of reality" brought into the classroom for detailed observation, analysis, and decision. It may contain two pages, or as much as 30 pages, or more.

Since a case is a report of a situation observed while it is occurring, the test of its quality is the accuracy with which it reflects the situation. A case is not written to present or defend an issue. The focus of the teaching case is the "present" of the case and on the forces at work producing the "present" of the situation.

A good case writer does not enter the "skin of the persons" he is describing. He may repeat their conversation, describe their behaviour, and even draw his own inferences of what they are thinking and feeling, but he does not indulge in the fallacy or the arrogance of stating what takes place in their minds. As George Lombard, in discussing "Self-awareness and Scientific Method," has stated, "He [the case writer] may present what he thinks A is thinking, but what he presents remains what he thinks A is thinking, not A's thinking. The strict application of this simple point is of major importance in maintaining the accuracy with which a case reflects an actual situation."

In writing a case, the case writer makes detailed observations of the situation and the people involved. In doing so he tries to separate what he brings to the situation from the data he is studying. The difficulty of acquiring an awareness of one's own frame of reference in observing data is great. But without this awareness the case writer will have difficulty in making relevant and accurate observations of the situation under observation. Lombard, in discussing the importance of self-awareness, mentions that the "skill in handling our relation to the data we seek to study and skills in making relevant observations are related. Both require the inner quality of awareness of self of which I have been speaking. On the one hand, awareness of self increases our capacity for handling ourselves in relation to our data by forcing on us continuous and critical inner appraisal and reappraisal of what we are doing in relation to an external reality. On the other hand, it reinforces our capacity for accurate observation by making us conscious of the difference between that which we see (perceived reality) and reality."[1]

In other words, the case writer requires the same process of learning as is required in the development of a practitioner: (1) self-awareness of one's attitude and assumptions, (2) skill in detailed observations and asking of meaningful questions related to the situation, and (3) a framework to think about the data.

In teaching by the case method, therefore, the role of the teacher can no longer be that of an *expert* who passes on his expertise to the students; he does not indulge in the luxury of telling his class what is right and what is wrong. He does not tell them what to observe and what action to take. Because he understands the difficulty of self-awareness, because he realizes how facts can be corrupted by one's attitudes and assumptions, and because he realizes how important personal experience is to the person experiencing it, he does not "teach." He does, however, *help* students to look at their attitudes and assumptions, and helps them to reflect and to re-evaluate their experiences.

SELF-AWARENESS OF ASSUMPTIONS

In the discussion of a case, the comments that students make are related to the assumptions and attitudes they bring to bear on the case. Some examples are: "you can't really trust people," therefore more control measures are suggested; "workers are lazy," therefore they require close supervision; "young people are arrogant," and therefore they require to be put in their places; "unions are bad," therefore they avoid negotiating as far as possible. In each case, such attitudes are related to some of their previous experiences. Thus, the student who mentioned that "you cannot really trust people" related an incident from his early childhood which *taught* him not to trust people. As a child he had received a piggy bank for collecting coins. When he left for school after his vacation, he left the piggy bank with his mother to look after carefully until his return. But on his return from school, he found the piggy bank broken and his coins all gone. The mother told him that, one day, when his father had required some change, he had broken the piggy bank to get the coins. This incident had left a very deep impression on him. Until this student is able to *see* how his own experience was influencing his evaluation of other people, understanding and skilled behaviour in dealing with people was not likely to emerge. The difficult task in teaching human behaviour is not telling them what they do not know about human behaviour, but getting the students to *unlearn* what they sincerely and genuinely believe about people that is not true. As Roethlisberger has so aptly said, it is not people's ignorance but "what they do know that ain't so" that really gets them into trouble.[2]

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[1] George F. Lombard, "Self-awareness and Scientific Method," *The Case Method of Teaching Human Relations and Administration*, Kenneth A. Andrews (ed.) (Cambridge, Mass. : Harvard University Press, 1960), p. 237.

Another common tendency, while discussing and *solving* a case, is a hunt for the villain. For instance, some students say that Manager X does not know how to delegate and therefore should either be fired or transferred. Others in the class want to fire the supervisor or the workers. In fact, everyone seems to have a villain to be disposed of. In discussing a case, the teacher does not tell the students whether they should fire the manager, or the supervisor, or the workers, but he tries to focus their attention on the assumptions they are making.

A senior manager in a traditional British company in Calcutta saw the young management trainee come to office in *chappals*. He assumed that the *foot-wear* was an indication of disrespect to him. Very angry, he told the trainee, "you better learn to respect seniors or else." If, according to the manager's norms, *chappals* are not a part of office dress, he will assume they mean disrespect, and anger and reprimand are likely to follow. In this case the manager did not separate his perception from his feelings about wearing chappals to office. He did not see that what he *saw* was a trainee in chappals, and that it was his feelings and assumptions which made him evaluate the trainee as disrespectful.

In the case method of teaching, the teacher's role is to help the students differentiate between *seeing* and *hearing* things from what he assumes and feels about them. This differentiation is by far the most difficult part of teaching and learning *human relations*.

ASKING MEANINGFUL QUESTIONS

In writing a case, the case writer's attention is focussed on the *here and now*. He describes what he sees and hears. By asking meaningful questions he can make further observations about the *data*. In teaching a case too, the teacher does not ask: Why are things the way they are ? Or why is Manager X an introvert ? Instead of asking such questions which only lead to conjectures, the teacher focusses the student's attention on making detailed observations of the situation. For instance, he does not let the students talk about *resistance to change*, but asks how the supervisor was behaving. When did he talk to the workers, and when did he shut himself up in his office ? What feelings are expressed by the behaviour of the supervisor or by the behaviour of the workers? The questions that are raised can only be answered after a detailed and thorough study of the case. The teacher's attempt is to help the student differentiate between facts and inferences. If the students learn to make better observations in the case, it is likely that the practice of making detailed and accurate observations will be carried into the work-situation. If the students acquire some degree of self-awareness and learn to make disciplined observations, they are likely to make better evaluations of the situation and, therefore, likely to arrive at better decisions.

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[2] F. J. Roethlisberger, *Man in Organization* (Cambridge, Mass.: Harvard University Press, 1968), pp. 90-91.

A Framework to Think about Data

In order to observe skilfully, the students need self-awareness on the one hand and a conceptual basis for thinking about human behaviour on the other hand. Without such a conceptual basis for thinking, students may miss what is happening and what is being *said* between two people. For instance, a useful way of observing an interaction between two persons or even among members of a small group is in terms of *Homan's* conceptual scheme of activities, of the sentiments and interactions involved. In observing the productivity of workers, a useful framework may be to look for *group norms* for supervisory behaviour and so on. Without a conceptual scheme, observations are likely to be biased and irrelevant. Accordingly, in helping students to observe more skilfully, we provide conceptual knowledge about social systems, theories of personality, organization, etc. A physician practises his various theories on his patient without talking to him about them. Our hope is that the administrator will acquire enough skill to practice the theories he has learnt in the organizational context without expounding them. Too often, if the learning consists largely of acquiring knowledge about theories in psychology and sociology, the administrator, when confronted with concrete data or a real situation, feels uncomfortable and lost. For the practitioner, theories are a basis for better observation, better evaluation, and better decisions.

Summary

The development of practitioners and the improvement of decision-making in the field of human relations depend, as we have mentioned, on improved self-awareness, improved skills of observation, and better conceptual knowledge of the behavioural sciences. To consider decision-making as something logical and apart from the personal and social evaluation of persons would be a serious mistake. To bring out the multi-dimensional aspect of the administrator's world and the interrelatedness of his inner and outer worlds, learning needs to be based on concrete data, i.e., on cases collected from the field. Through the discussion of cases the students learn to observe, to diagnose situations, and to reach their own decisions. The role of the teacher is to make them more aware of what their assumptions and feelings are, what they are perceiving and what inferences they are drawing, and to indicate the complexity and the relatedness of the data. In the case method, each individual can set his own pace of learning, unlearning, and relearning.

ROBERT E. COFFEY

Territory, Maps, and Cases

TERRITORY AND MAPS[1]

MOST PEOPLE want to develop their skill in observing and understanding the world around them and in behaving "appropriately" in specific situations. The "Sherlock process" (observation, knowledge, reasoning) approximates what we all try to do to some extent in living in a complex and often confusing world. We observe what is around us, decide what part of all we see is important, try to relate it so that we understand what is there, make decisions about what alternative actions we might take to satisfy our own and others' needs, predict the consequences of those alternatives, and finally behave. Of course, we sometimes skip some of these steps, and most of the time they occur almost simultaneously so that we are unaware of their taking place as described above.

The world we behave in is made up of concrete phenomena, that is, of tangible, observable people, things, and events, which are perceived through the senses rather than through intuition or reasoning alone. We will refer to this world (or the specific parts with which we happen

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Anthony G. Athos and Robert E. Coffey, *Behaviour in Organisations: A Multidimensional View*, © 1968. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

[1] These terms are taken from Alfred Korzybski, *Science and Sanity* as used in S.I. Hayakawa, *Language in Thought and Action*, 2nd ed. (New York: Harcourt, Brace, and World, Inc., 1964), pp. 30 ff.

to be concerned) as "territory."

In order to comprehend the territory around us, it is useful to have some ways of thinking about it. By "ways of thinking" we mean words, concepts, and theories (abstractions) that help us to know what to look for when we observe territory, and how to analyze, how to relate, and how to interpret what we see. We will use the term "maps" interchangeably) with "ways of thinking." Maps enable us to make predictions and action decisions in the territory around us.

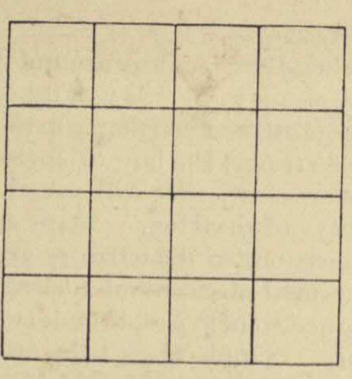
Maps are oversimplified abstractions that represent concrete territory. They are designed to help people understand and find their way through that territory. Simple maps help, but sometimes not very much. For example, you might look at a road map and observe that City A is only 100 miles from City B. You might, therefore, allow about two hours to make a trip by car between the two cities. However, if it happens that the route goes through a mountainous area much of the way, and the road is winding, and there are many trucks on the highway, your estimate is likely to be off by an hour or two. Your map gives you only a partial representation of the territory, and in this case you might prove to be inadequate for your purposes.

The territory of human behavior is wondrously complex. Suppose, for example, someone were to ask you to map the territory of a roomful of people. You could quickly and easily draw lines representing the room and its dimensions, and you could indicate where furniture and fixtures are located. But "mapping" the people "completely" would be an insurmountable task. It is true that you could depict some things easily—the number of people, their size, age, color, sex, and even such things as their education, religion, and economic status. But the dynamic feelings, motivations, and assumptions of each individual, which are of utmost importance for behaviour, are impossible to map completely.

MAPS HELP YOU SEE MORE IF NOT ALL

How many squares do you see in the illustration at page 16 ? Some of you will look at it and respond rather quickly and easily with the number sixteen. Others, looking at the same figure, will respond (probably more slowly) with twenty-six. Some will even see thirty squares. Thus, some readers will see more squares in the same figure than will others. In a way, this illustrates one of the major goals of education—the ability to look at a piece of territory and see *more* in it than is seen by a less educated eye.

What happens when someone who lacks either an education or interest in art looks at an abstract painting ? Reactions will differ with



the individual, of course. But it would not be surprising if the response were rather neutral, or even negative, including such comments as: "What is it? What is it trying to show? It's just a blob of color." Someone more sophisticated about art, looking at the same painting, would probably react quite differently. He might respond by talking in terms of design, balance, color, rhythm, texture, brush technique, and other similar dimensions.[2] He would also probably talk in terms of his personal feelings about the total impact the painting has for him. Because he has some ways of thinking about the painting and the process of looking at it that the less sophisticated observer lacks, his experience is likely to be a richer and more meaningful one.

One of the dangers inherent in learning words and concepts designed to help observe and understand territory is that we sometimes fail to distinguish between the words and the territory, or else do not know how or when to apply the words to the territory.

Let us call this world that comes to us through words the *verbal world*, as opposed to the world we know or are capable of knowing through our own experience, which we shall call the *extensional world*. . . . The human being, like any other creature, begins to make his acquaintance with the extensional world from infancy. Unlike other creatures, however, he begins to receive, as soon as he can learn to understand, reports, reports of reports, reports of reports of reports. In addition he receives inferences made from reports, inferences made from...other inferences, and so on. By the time a child is a few years old, has gone to school and to Sunday School, and has made a few friends, he has accumulated a considerable amount of second-and third-hand information about morals, geography, history, nature, people, games—all of which information together constitutes his verbal world.

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[2] The word "design" is an example of a map. It is an abstraction, but for some people it has meaning that enables them to observe, analyse, interpret, and respond to certain territory more fully and accurately than they could if they did not have that concept as one of their personal ways of thinking.

Now, to use the famous metaphor introduced by Alfred Koraybski in his *Science and Society* (1933), this verbal world ought to stand in relation to the extensional world as a map does to the territory it is supposed to represent. If a child grows to adulthood with a verbal world in his head which corresponds fairly closely to the extensional world that he finds around him in his widening experience, he is in relatively small danger of being shocked or hurt by what he finds, because his verbal world has told him what, more or less, to expect. He is prepared for life. If, however, he grows up with a false map in his head —that is, with a head crammed with error and superstition—he will constantly be running into trouble, wasting his efforts, and acting like a fool. He will not be adjusted to the world as it is; he may, if the lack of adjustment is serious, end up in a mental hospital.[3]

Some people are so set in their ways of thinking that they try to fit new territory to their thought patterns rather than vice versa. This can be as helpful as using a map of Los Angeles to find one's way around St. Louis. The point is that in addition to developing ways of thinking, we also need to develop some skill in knowing *which* ways of thinking to use appropriately in specific situations, and *then* how to use them.

Say that we have different ways of thinking about individuals, people behaving in pairs, people behaving in small groups, and people behaving in larger organizations. It is probably most useful for us to use our interpersonnel map when we are observing and trying to understand two people communicating with each other; but that map might be less adequate for understanding the behaviour of a small group— it would not include several pertinent elements. In no way do we want to imply that there is one way of thinking appropriate to a particular situation. Several may be useful. But some discretion must be used in deciding which ways are *most* helpful in given situations.

The degree of specificity of maps varies. A general map can be helpful for understanding territory in gross terms, but when we want to find our way in concrete territory in more detailed fashion we need to use more specific, less inclusive maps. Thus the scale of the map ought to be related to our purpose in the territory. For example, the concept of "sentiments" is a general map. We know that a man's sentiments influence his behaviour, and so to understand him better we may ask ourselves about one aspect of his sentiments: what is he feeling ? This may be a useful question as a starter, but we need to become more specific, as a rule, to achieve more depth of understanding. For example, we may need to identify whether the person appears to have positive or negative, intense or weak feelings. Even if we were to identify them as intensely negative feelings—even more specifically, anger—we would still appropriately try to understand the phenomena underlying the anger. Thus, "sentiments" is a very general, inclusive map; several more specific maps are needed to grasp more specific phenomena. The closer to concrete territory we wish to get, the more useful specific maps become. If we avoid the territory, we are likely to be thinking about abstractions as if they were "real." If we avoid maps, we are likely to be much less skillful in dealing with the territory.

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[3] Hayakawa, *op. cit.*, pp. 30-31.

One of the problems people encounter in observing and interpreting territory is that they can only see and think about a limited number of things at a time. There are usually many ways of looking at and thinking about territory. Recall our art analogy—one might look at the painting in terms of line and design, or of color and texture, or of personal feelings and images. None of these ways are "wrong," although for a given painting and a given observer with a given purpose some might be more rewarding than others. The observer who has several ways of thinking can look through the "lens" of one way of thinking, then through another, and then another, and then he may try to put loosely together in synthesis all that he has seen. In sum, he has gone through the process of analysis (mentally looking at parts) and synthesis (relating the parts to form a whole). The more ways of thinking he has at his command, the more likely he is to see and understand and experience the territory in ways that are relevant to him.

Using Cases for Learning

One of the major types of learning tools used in this book is the case study. A case itself is not territory. It is a casewriter's abstracted description of territory. However, a case can serve as a useful substitute for territory, and using several cases has the advantage of providing, partially vicariously, a variety of different experiences. Reading and diagnosing cases that describe different people in different settings provide us with substitute, second-hand experience that can help develop our skill in observing and understanding actual territory when we experience it. That is why there is an advantage in reading cases that describe a variety of people, events, settings, and time periods.

As you have exposure to a variety of cases you are more likely to recognize the importance of situationally interpreting each piece of territory you encounter. It is true that situations have similarities with others, but it is also true that they have differences that make each unique. For this reason we stress the importance of *situational analysis*—the observation and interpretation of each behavioral situation more in terms of its own uniqueness than in terms of its similarities to other situations. It makes no sense, of course, totally to ignore the similarities, for that would be to reject maps needlessly.

One way in which case studies can be used is to give students an opportunity to find "their own order" in a description of territory. The cases, as simulations of concrete territory, often include a variety of data. The challenge is to decide which of the data are relevant, how they relate, and what they mean. The ways of thinking developed in this book and in other places guide our observations and reasoning, but none of them give surefire guarantees of reaching pat answers. This is true to life. We all face many situations that require us to "make order" out of what we see. Doing this often raises feelings of doubt, anxiety, inadequacy, and frustration. When some of us experience these feelings in trying to "figure out" particular cases, we can find some consolation in knowing that these feelings are as shared as they are useful.

Some students experience frustration because they do not easily comprehend cases or because they see things in a different way from others. These students frequently look to the professor to provide the desired order and answers. That is not surprising, because teachers have provided the structure and solutions for most, if not all, the courses and problems students have previously encountered. On the other hand, some students seem to thrive in unstructured discussions and enjoy the freedom to do their own exploring. Most students experience both feelings. The comfort and security of structure (e.g., memorization) is rewarding while the lack of freedom confines; the openness of freedom (e.g., discussion) is exciting, while the lack of structure induces uncertainty. Too much of either freedom or structure is ultimately dysfunctional in learning situations.

One of the most difficult aspects of diagnosing many cases is to determine what the problem is. Many cases include several problems, and it is difficult to determine which should be dealt with and in what order. In this respect such cases are similar to real experience. All of us regularly face the problem of observing our partially unordered environment and of deciding what we should do in it. Deciding what to deal with is often difficult. Thus, although it is irritating not to have the problem defined or presented in obvious form, it is useful for practising what we encounter in actual experiencing.

It is clear that life itself presents to each of us many complex and confusing situations. It is equally clear that we often have to provide our own order—we sometimes cannot turn to teacher, parent, minister, or friend to find that order for us. There is thus considerable merit in having experiences in school that stimulate these real-life conditions—i.e., partially unordered, reasonably unstructured situations in which we discover our own modes of initiation and response. Experiencing the process of learning this way may be frustrating and uncertain, but it is also both practical and realistic.

Although you may have some difficulty in finding order in the cases you read, you will undoubtedly recognize after you have read several of them that the cases themselves are partially ordered abstractions of reality. This fact underlies the potential danger of becoming proficient at *just* analysing cases. Because they are not real territory, but rather a reduction of it, it is quite possible to become proficient at analysing them and still remain unskillful at finding order in one's experiencing of his helpful in diagnosing real territory, but that is just the point: case diagnosis is not an end in itself but rather a means of developing skill in observing and understanding real territory.

Diagnosing cases can be different from diagnosing real territory in still another way : we are not likely to be so personally involved in cases as in real territory. It is possible to become proficient at analysing cases quite objectively and at the same time be unable to maintain that objectivity in one's own experiencing, where one's own feelings, assumptions, and values are involved. On the other hand, you have undoubtedly seen people becoming very involved in case discussions, and expressing their own feelings and values. The point is to remain aware that personal involvement or its lack can make a difference in how we respond to cases and to real territory.

Questions commonly raised by students new to the "case method" of learning (as it is often used in business schools) are: What is the answer ? What actually happened ? What would *you* do ? Considerable let down and frustration often ensue when the response is : There is no *one* right answer; we don't know what happened; what *you* would do is what matters. Again, this is to be expected. Students have for years been given problems in school for which there are clear and precise answers, and they expect that to continue happening, as it can and does in some areas. However we all know that in real life there are usually several alternative courses of action open to us and others in specific behavioral situations, and often more than one of these is right, "okay," or "good." Further, we usually do not know whether they are "good" or "bad" decisions until we have implemented them and seen the results. Even then, what was a good decision at the time may be interpreted as bad because of unforeseen events—at least unforeseen at the time the decision was made. The problems in life that matter are more for living with than solving.

One reason frequently given for wanting to know what happened is that a basis for comparison is provided. However, the assumption cannot be safely made that the people in a particular case made either the "right" or the "best" decision. Even if the results were good, there is no guarantee that the decision made was the only possibility. Further, what was an appropriate decision in a past situation is not necessarily appropriate for any other decision, if we accept the assumption that each behavioral situation is likely to have at least some differences that make it unique.

The question might naturally follow : Well, then, what use is there in studying cases ? One answer is that by sharing our perceptions with others, and by trying together to find order in cases, we can begin to see more and understand better. We learn better what to look for, how to relate various elements, how to interpret them, and how to consider the consequences of our various action decisions. We can learn to identify the implicit, often unconscious, assumptions and inferences that both we and others make, and that in turn blind us from seeing more and deeper. In sum, we can develop our analytical and diagnostic abilities, which in turn help us make better decisions in our own experience. To ask for security and sureness is to seek "hard knowledge" which can armor us against the uncertainties and thus lock us away from living our life.

Another answer to the question "Why study cases ?" is that a group of people who can communicate well with one another can study a case and arrive at fairly high agreement about what they perceive and what the consequences of certain actions would be. The potential reward awaiting an involved group exploring a case and trying to communicate with one another is a breakthrough to richer understanding.

SHOULDS VERSUS ISES

All of us have values and make value judgments about much of what we perceive. But making value judgments can sometimes cloud our observation and understanding of behaviour unless we understand the process involved. For illustrative purposes, assume that a young man and woman are seated on a park bench in the moonlight and that they are kissing. Assume three people walk by, witness the scene, and later tell you what they saw. One says "As I was walking in the park, I was shocked to see two wild youngsters violating all standards of decent conduct." The second says "As I was walking in the park, I was delighted to see two fine youngsters enjoying each other so much." And the third says "As I was walking in the park I saw two people, a man and woman, each about 20, sitting next to each other on a park bench, kissing." Obviously, the first two descriptions are value laden; the third is purely factual and nonvalue-laden. In developing our skill in understanding behaviour it is helpful to become aware of the differences

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between the value-laden and the nonvalue-laden type of description. Doing so may enable us to perceive both phenomena and our personal reactions to them more accurately, and this increases our chances of achieving a better understanding of what we observe about the phenomena and ourselves. A closely related skill is that of being able to separate our *shoulds* from our *ises*. To illustrate what is meant by this, assume that Supervisor A observes some of his workers indulging in horseplay or deliberately slowing down their work pace. He may think to himself "Workers *should* not indulge in horseplay," and thus he might quickly step in to stop the behaviour because it is "wrong." (The workers may not perceive what they are doing as wrong, or they may see it as partially wrong but justifiable for offsetting reasons, such as unpleasant work conditions or harsh treatment by the supervisor.) He has observed by means of his *shoulds*, judged, and acted. In sum, value judging prematurely can lead, as it did in this illustration, to reversing the old adage "seeing is believing" to "believing is seeing" and thus to taking action upon symptoms directly without considering the causes of behaviour.

Supervisor X may face a similar situation and share Supervisor A's values about horseplay and work slowdown. However, he sees objectively that the behaviour *is* occurring, whether or not he believes it should. Thus, he will try to understand *why* the behavior is taking place and to determine what alternatives might be implemented to change it by dealing with its causes. He would observe, *ask why*, consider alternative actions, predict consequences, and then act.

It is apparent from the above illustrations that one of the key words is "why." Behavior is always caused. Thus, in trying to understand behavior, it is usually appropriate to ask *why* it is as observed. Asking this simple question can greatly improve our chances of understanding and dealing with the causes of our own and others' behavior rather than just the results.

ASSUMPTIONS AND INFERENCES

Most of us, at least sometimes, accept without awareness assumptions or inferences as fact. Becoming more aware of our own assumptions and inferences (as well as those of others) can help us become more accurate observers and understanders of behavior. You might hear one man saying to another : "Joe works very hard, so he must really love his work." This statement may or may not be true. The assumption that Joe loves his work does not *necessarily* follow from the fact that he works hard. He may dislike the work but wants to keep his job, maintain his self-image of being a hard worker, or merit a promotion. It may make a difference which is true. For example, if Joe's boss were to assume that he worked hard because he loved his work, he might decide to keep Joe on that job instead of promoting him or transferring him to a new and, to Joe, more appealing position. This could be unfortunate if the reason Joe worked hard was to get out of his present position.

The difficult problem we all encounter in distinguishing between facts, assumptions, and inferences is that we often are unaware of the assumptions we make. Being unaware, we do not know to question the assumptions.

Identifying assumptions is only part of the skill we can develop. Another aspect is to become more adept at using data to check the assumptions and inferences we make. What frequently happens is that a person making an assumption selectively perceives the data that support it but disregards or minimizes those that contradict it. And sometimes no data exist to support or deny our assumptions or inferences. Being open to both supporting and contradicting data, and being aware when we lack data of either kind, are helpful in more accurately observing and understanding behavior.

GEORGE F. F. LOMBARD[1]

Self-awareness and Scientific Method

THE RECENT successes of the natural sciences have arisen from the use of controlled experiments. In teaching and research they receive primary attention. This is entirely appropriate to the needs and opportunities of those sciences : the whole history of controlled experiments in them has been that they are fruitful of new knowledge. Their history in the social sciences, with few exceptions, is that they have not. Since one man's meat is frequently another's poison, the techniques of the controlled experiment are not what I wish students of human behaviour would learn from the natural sciences. My reasons for this reside in two familiar but neglected skills without which science has nowhere progressed.

Experiments may fail for many reasons : only those based on relevant observation of nature have any chance of fruitful results. Since before Galileo's "fantastically artificial" neglect of friction in his experiments on motion, the experiments of natural scientists have,

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[1] Expanded from remarks made at a discussion entitled, "What the Social Scientist Would Like His Students to Know About the Natural Sciences," at the Harvard Summer School Conference on "The Place of Science in General Education," July 1949. For the ideas behind these remarks, I am indebted to F. J. Roethlisberger for clarifying for me the importance of observation in scientific method, and to C. I. Barnard for crystallising the concept of self-awareness.

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on the whole, been relevant to the nature of things; the results of the polls taken before the 1948 elections are evidence that many in the social sciences have not.

Claude Bernard said, "The experimental idea is by no means arbitrary or purely imaginative; it must always have support in observed reality, that is to say, in nature."[2] This concept of experiment is quite different from one current in the social sciences today, namely, that the limit of experiment is the ingenuity of the experimenter. But how are scientists to know what is relevant to nature ? The difficulties here are great, especially so because research itself may distort the natural happening of events. How can that be studied which study itself distorts ?

Natural scientists have long been aware of the problem posed by the relation of the researcher to his data. To be sure, in some of the natural sciences the presence of a researcher does not greatly affect the phenomena being studied. In others, the apparatus must be shielded from, for example, the heat of the investigator's body. In biology and physiology, the problems are quite different and often complex, even in simple experiments. Here also, thanks to the work of such investigators as Bernard, Cannon, and others, many of the obstacles have been overcome.

In the social sciences, the sensitiveness of the phenomena being studied to the presence of an investigator is especially great. This sensitiveness of human life to interaction with other human beings is familiar to all of us, and not only in research. It is demonstrated in every relation. To clarify the point, let me take extreme examples.

Restrictive controls, short of the extinction of life itself, produce in those who are controlled diverse reactions, in all of which may be recognized attempts of the self to maintain its integrity. This seems to be true of parental, educational, administrative, military, and governmental controls. For example, this aspect of human behavior continually plagues the administrator who seeks to initiate change. In research, too, what we seek to control again and again resists the investigator and in often subtle ways upsets his plans. So, for many years, experiments in industry with rest pauses for workers were inconclusive: sometimes producton increased following their introduction; sometimes it did not. Investigators cussed "human nature" until the researchers at Hawthorne began to understand the nature of their relation to the workers in the room set aside for the test.[3]

Impressive though reactions to violation of integrity are in human life, the positive effects of a relation with others can be even more startling. The capacities of human beings to respond to warmth and appreciation with adaptaion and growth are tremendous, although these powers are often latent. An article by Vincent Sheean entitled "On Love," in the July 1949 *Atlantic Monthly*, gives an instance in point. Philosophy, religion, medicine, several of the social sciences, practical men of affairs, and military leaders have all documented this phenomenon. Whether human beings welcome or resist a relationship, their active response to one is apparent. My point is that in the social sciences, as in all sciences, an investigator's skills in handling his relation to his data are of great importance.

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[2] Claude Bernard, *An Introduction to the Study of Experimental Medicine* (New York; 1927), p. 38.

[3] Roethlisberger and Dickson, *Management and the Worker*, Chap. viii.

But granted that an investigator needs skills in relating himself to his data, he must still make relevant observations. Although some physical scientists have had truly exceptional capacity in this direction, they have seldom made explicit the processes by which they achieved their results. Often, I suspect, they are not aware that there have been processes. Often they do not have to be conscious of them: their work has progressed far enough so that frequently they can take for granted the observations of nature on which an experiment is based. "At some time and in some way not recorded,"[4] is a fairly typical description of the origin of an observation that led to fruitful experiment.

Not all records of observation are this incomplete. President Conant refers to Galileo and a pump that "was once called to his attention"[5] and to Galvani, the frog's legs, and two people who are identified only as "one of the persons who were present" and "another one who was there." The fact that such careful observers as Galileo and Galvani failed to record the particulars of the situation in which their first observations occurred is indicative of the point I wish to make. Who was the person "who was present" who noticed the movement of the frog's legs? Who was "another one" who noticed that a spark seemed to excite the action? What was the background of their thinking that made them mention these observations to Galvani as possibly significant? Particularly, what in Galvani's thinking led him to seize at once on their remarks with "incredible zeal and eagerness," even though he "at the time had something else in mind and was deep in thought"?[6] Would that all of us when deep in thought could thus turn our minds into fruitful channels.

More detailed instances of how relevant observations have occurred can readily be found in Mach, Poincare, Bernard, and others who have documented the progress of science. Cannon's *The Way of an Investigator* supplies us with valuable material. We also know something of

[4] J. B. Conant, *On Understanding Science* (New Haven: Yale University Press, 1947), p. 37.

[5] *Ibid.*, p. 33.

[6] *Ibid.* p. 67. *In The Way of an Investigator*, p. 69, Cannon, without quoting sources, gives a slightly different account of these incidents, in which the same failure to record precisely the original observations is apparent.

the observations that led to the development of penicillin and radar. In all this material three phrases are used over and over again : "an accidental observation," "a hunch," and "chance." These words make me curious. Just what do they mean ?

Two possibilities occur at once. The words hardly seem adequate as descriptive of a *process of thought*. On the other hand, they may re-reflect an *attitude of mind* that glories in the obviously brilliant results of the controlled experiment, to the neglect of the skilled observation. It is as if this attitude were saying, "what could be less worthy of attention than an accident, a hunch, or chance ?" The choice of these words signifies how little the process is thought to deserve attention—and how little it receives. "It happened once; it was accidental; why pay more attention to it ?" A hunch : "A small thing; random; inexplicable. Now, when we can control the variables. . ."

Webster lists fourteen meanings for the word "chance." The fourteenth is : "The fortuitous... element in... existence; that which happens... in connection with events to which it bears no necessary relation." The first meaning is simply, "The happening of events; the way in which things befall." I call attention to the contrast of connotations in the fortuitous, the unrelated, and the inexplicable, on the one hand, and the happening of events, nature, on the other. Priestley redefines chance as "the observation of *events arising from unknown causes*."[7] "Chance," with causes unknown, is surely distinct from chance without cause.

Please note, my claim is not that fortune plays no role in observation. Indeed it does; but when we have said that, have we said all there is to say ? To me it seems not, though what else there is, is both complex and difficult to describe.

Certainly a skill of observation is something much more than what is involved when I say, "I see you." You are visible reality—at least, I find it fruitful for many purposes to assume that you are. What I mean by the process of observation is much more complex. To observe things in this other sense involves a way of thinking about things, as well as the data that are observed. Two psychologists, Snygg and Combs, have recently stated the dual nature of the process as follows :

> The progress of science. . . is in two directions. The first is toward the discovery of new facts. This unceasing search is continually turning up new facts inexplicable in the old frames of reference. In turn, the scientist is forced to develop new frames of reference. Once a more adequate frame of reference has been achieved, its

[7] J. B. Conant, *The Growth of the Experimental Sciences* (Cambridge : Harvard University Press, 1949), p. 53.

> effectiveness is soon demonstrated by the discovery of a great number of new facts and relations.[8]

A skill of observation is, then, a capacity to *discriminate between reality as it actually is and reality as any one of us* sees it, determined as it is for us by the frames of reference, the conceptual schemes, which we habitually use. Some psychologists speak of this difference as the difference between "reality" and "perceived reality." To learn to step outside the conceptual schemes one habitually uses in search of new and more fruitful ones is no mean accomplishment. Science and philosophy have long pondered the problem.

President Conant's book *On Understanding Science* is helpful in giving us examples of the difficulties in the way of this learning process. Swammerdam, who experimented with frogs' legs but failed to push the work as Galvani did; Rey, whose work on calcination of tin should have exposed the phlogiston theory of combustion; the need of a new concept to "fit the times" if it is to be useful; and the "power of an old concept" to prevail against contradictory evidence are all to the point. President Conant says : "The history of science... fails to demonstrate any uniform way in which new experimental facts and observations generate the fruitful notions in the minds of great investigators."[9]

Bernard has this to say : "Apropos of a given observation, no rules can be given for bringing to birth in the brain a correct and fruitful idea that may be a sort of intuitive anticipation of successful research."[10]

These difficulties sound ominous for my purpose, but they give us a clue, for our question need not be the rules for getting from a *given* observation to an experimental idea. Our question can be, rather, "Are there any conditions of the mind which seem to assist the making of new observations ?"

Bernard discusses at some length "a few general principles for the guidance of minds applying themselves to research (in experimental medicine)." Cannon, among others, speaks of "hard labor" and "the prepared mind."[11] Both Conant and Cannon quote Pasteur, "Chance favors the prepared mind." Henderson's statement of the "conditions/ necessary/ for understanding" is well known : "First, intimate, habitual, intuitive familiarity with things; secondly, systematic knowledge of things; and thirdly, an effective way of thinking about things."[12] His more precise description of "systematic knowledge" is by no means as familiar: "*Accurate observation of things and events*, selection, guided by judgment born of familiarity and experience, of the salient and recurrent phenomena, and their classification and methodical exploitation."[13]

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[8] Snygg and Combs, *Individual Behavior*, p. 5.

[9] Conant *On Understanding Science*, p. 17.

[10] Bernard, *Introduction to the Study of Experimental Medicine*, p. 33.

[11] Cannon, *The Way of an Investigator*, pp. 67, 79.

[12] L. J. Henderson, *Sociology* 23. *Introductory Lectures* (Harvard University Rev. October 1938; mimeographed), p. 6.

Henderson's remarks describe usefully—at least, as he was wont to say, "to a first approximation"—the *outward* organization of training necessary to prepare a mind for fruitful observation. Since it is in the mind that an idea is generated, the process of creating one has an *inner* aspect as well. These outward conditions will not be productive unless they stimulate the growth of this inner capacity. A key to the ability to observe the difference between reality and reality as our existing conceptual schemes permit us to perceive it is awareness of our own frames of reference. If we know what they are, we are in a position to distinguish between them and reality. We can "see" that the world is round, not flat; that weights and feathers fall uniformly; that not all unions are "bad" and all managements "good," or vice versa.

In many of us, awareness of this sort remains low; in others, it develops into an overriding—sometimes neurotic—conviction of sin that leads to crises of indecision and inaction. In still others, it achieves a balance that permits effective discrimination between reality and what we see as reality.

At this point I am faced with a difficult choice. The strict logic of my topic requires that I should describe as precisely as possible just what is the balance in the processes of the mind that leads to effective awareness. To do so would take me far into several theories of psychology from which we would emerge convinced that the "gaps" in what is now known are more important than the "blocks" of what is known. Consequently, I propose to leap this hurdle by calling attention to two aspects of it: first, that the gap is there, and, second, that I am neglecting it.

Let me say only that a new idea worthy of attention seems always to spring from reflection. Consequently, balanced awareness involves an effective alternation between reflective thinking and concentrated attention. This fact is important in linking the general conditions of training of which I have been speaking with this inner process of mind; for it follows that training must supply adequate material—that is, experience—for reflection, as well as an opportunity for the two kinds of thinking to develop in effective alternation with each other. The conditions Henderson laid down meet these requirements; but it is precisely at this point that we need to know much more about what learning is, and what the conditions are that favour it.

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[13] L. J. Henderson, "The Study of Man," *Science* XCIV (1941), 1. The italics are mine.

Let me repeat, the difficulty of acquiring an awareness of one's own frames of reference is great. It is especially so in the social sciences, where the investigator's own frames of reference, from which he draws the meaningfulness of his whole life, are called into question. Difficult and even painful as this learning process may be, it is nonetheless inevitable in the accumulation of knowledge; else the researcher fails to separate what he brings to the situation from the data he is studying.

Skills in handling our relation to the data we seek to study and skills in making relevant observations are related. Both require the inner quality of awareness of self of which I have been speaking. On the one hand, awareness of self increases our capacity for handling ourselves in relation to our data by forcing on us continuous and critical inner appraisal and reappraisal of what we are doing in relation to an external reality. On the other hand, it reinforces our capacity for accurate observation by making us conscious of the difference between that which we see (perceived reality) and reality. This awareness is as necessary in the training of social scientists as it is in general education for citizenship.

In the social sciences we often proceed as though we were unaware of the existence of the need. Our attempts to meet it have until recently been in one of two directions, both relatively sterile compared with progress in other sciences. On the one hand, we study situations far removed from what is familiar to us because we hope that the gross determinants of the behaviour occurring in them will persist and be obvious to the investigator in spite of his presence. Studies of primitive tribes and cultures and of other groups at the fringe of our civilization have taken this direction. These studies are eminently worthwhile in their own right, and much of general value has been learned from them. Yet their methods leave us with a sense of something missing when we focus them on the problems of modern life. Too often, sensing "the shadow but not the substance" of our relation to our data, we retreat into a pseudo objectivity that defeats itself. By attempting to make our questionnaires, tests, and laboratory-type experiments completely objective, we arrive at a typical norm so far removed from the uniqueness of the particular instance that the knowledge gained is all but useless in application.

Why I believe the quality of awarness is necessary in the training of a social scientist will, I hope, be clear by now. That quality in him is the seed from which new understandings of the way things happen will grow.

I believe this quality is equally needed today in general education in training for citizenship. When a boy-girl relationship becomes that of husband and wife, a couple cannot assume that communication between them over mutually created problems of children, housekeeping, and career will be eased by the understanding that arises from a common background. Indeed, most of us sooner or later have to realize that no such community of background exists. Under these conditions understanding, if it is to be achieved, must be demonstrated in face-to-face interactions in the present. This means that each of us must be able to recognize and behave in terms of what is important in our relations here and now. Distinguishing this present reality from the way in which our past experiences have taught us to see it is vital to securing, first, understanding; then, communication and active cooperation.

Difficulties of communication between people exist not only in family relationships. They are a common symptom of our times. In industry they exist at every level of organization, between worker and worker, between foreman and worker, between staff specialist and line executives. They are particularly important and difficult between representatives of different organizations—business and government, business and labor, labor and government, government and government.

Let me take brief examples from foreign affairs; the needs are only less dramatic, hardly less acute, in the domestic economy. An administrator of the Economic Cooperation Administration interested in improving the efficiency of manufacturing in Europe, or a nutrition expert of the United Nations Food and Agricultural Organization seeking to improve the diet of Southeast Asia, must each be aware of the threat to existing customs that his methods present. Without this awareness, what he is doing will inevitably seem to be destroying established ways of doing things, rather than creating new freedoms. His relation and the relation of our country to those peoples then come to be hated and feared, instead of becoming the more fortunate relations through which they can seek the help themselves.

Administrative skills in instances such as these go a long way toward making good intentions effective, but they are never wholly so without understanding and support in the wider community. Indeed, now that destruction for one may mean destruction for all, whole nations are called on for an awareness of self in relation to others such as has never before been required. At these levels the problems are of an entirely different order from any I have discussed up to this point. Yet, in peace and in war, citizen awareness of the effects of national policy is imperative. For example, however disastrous bombing may be to lives and property, it may also arouse to action a will to resist. The stubborn "happening of events" will then bring it about that this living resistance will replace both lives and property. If this should happen, bombing becomes a boomerang of a kind no primitive ever wished to possess. Even the *threat* of bombing may AROUSE such resistance.

And the threat is today a reality in the lives of all of us. Surely general education's responsibility to address the problems of communication between peoples cannot neglect these aspects of understanding. Understanding of how what I myself do, of how what we as a nation do, affects and is affected by, the social realities of the divided world in which we live.

Many noted students of the social scene—Toynbee, Fromm, Rogers, Liebman, Whitehead—point to something closely akin to what I have been calling a conscious awareness of self in relation to the external world, as the chief need of civilization today. Our ignorance of what is required at these more complex levels is appalling; yet conditions today make it necessary to face the problems of research and education that are involved.

At the simpler levels, useful leads for organizing training in awareness are available, though neglected. One does not need to be a skilled observer to recognize that education does an uneven job in providing would-be researchers and citizens with foundations for the development of these skills.

In both school and college the emphasis is on systems of knowledge, a quite different thing from "systematic knowledge." Our conceptual schemes are more often "theories of explanation"[14] than fruitful ways of helping us to new observations. We leave the acquisition of "intuitive familiarity" to chance, or neglect it entirely, inspite of good examples set us in engineering, and especially in medicine.

Beyond this, experience suggests that training organized under the burden of responsibility in connection with the handling of actual situations provides a favourable climate for self-awareness to mature into active skill. Henderson makes much of this point and refers both to medical training and to what I believe was once known as "Milner's Kinder-garten" as a case in point in a quite different field, that of government administration.[15] Yet everywhere in education, especially in the training of ourselves, the teachers, neglect and chance have captured the "burden of responsibility."

I could mention "self-directive" interviewing as a promising new tool of research for some fields of the social sciences. The recent suggestion of an "internal frame of reference" as an appropriate conceptual scheme for psychology may be most fruitful. Role-playing and several forms of group discussion, such as group therapy and group dynamics, are having some success in developing effective self-awareness. Semantics and psycho-analysis also have important contributions, as may the psychodrama and sociodrama. I would be overly self-aware indeed if I did not mention, too, our rather different use of case-method instruction in human relations in General Education at Harvard College and in the Graduate School of Business Administration. We have plans for new, as yet untried ways of training in social skills under the burden of responsibility.

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[14] Henderson, *op. cit.*, pp. 8-10.

[15] See also John Buchan, *Pilgrim's Way* (Boston : Houghton Mifflin, 1940), pp. 100 ff.

I have now tried—I am sure, inadequately—to clarify two aspects of scientific method, the importance of which I wish students of human behavior could learn from the natural sciences. I have described them as skills of handling oneself in relation to one's data and as skills of making relevant observations of nature. An inner quality of the mind, which I have called self-awareness, seems to me a key to their acquisition. At this stage of the growth of knowledge in the social sciences, I give techniques of experimentation secondary emphasis. As social scientists learn to handle their relations with their data and to make relevant observations, I am confident that experimentation will reappear in ways that do not distort the happening of events. Our start is to learn to make accurate observations of nature.

PART TWO

Understanding Individual Behaviour

BERLEW

Establishing An Identity

KUBIE

Some Unsolved Problems of the Scientific Career

ZALEZNIK, CHRISTENSEN, ROETHLISBERGER

Motivation and Management

READINGS

DAVID E. BERLEW

Establishing An Identity

INTRODUCTION

AMERICAN PSYCHOLOGY has only recently acknowledged the important role played by human relationships in man's search for a sense of personal identity and personal worth. Perhaps Harry Stack Sullivan and Carl Rogers more than any other writers have been responsible for this humanizing trend in our psychological tradition. One of the most important contributions of this trend has been the emphasis it has placed on the individual's potential for personal development and growth. This essay will examine some of the interpersonal processes relevant to such personal development.

In this essay we shall discuss what we believe to be two major components or subprocesses of self-confirmation. We shall call the first of these the process of *self-evaluation*. All of us have beliefs about our relative and our ultimate worth. We feel superior to some persons but inferior to others. We may or may not feel "worthy." Most of us expend considerable energy trying to maintain or change our beliefs about how good we are. It is this continual process of self-evaluation and re-evaluation that determines an individual's level of self-esteem or sense of personal worth.

Reprinted by permission from *Interpersonal Dynamics : Essays and Readings on Human Interaction* by Warren G. Bennis, Edgar H. Schein, David E. Berlew, and Fred I. Steele. (Homewood, Ill : The Dorsey Press), 1964, pp. 207—225.

We shall refer to the second major component of self-confirmation as the process of *self-definition*. Just as we have beliefs about our worth, so we also have beliefs about who we are and what we are. Some persons, particularly adolescents, seem to be engaged in a desperate struggle to define themselves. Others appear to be concerned primarily with maintaining or preserving beliefs about themselves. Still other persons seem to know what they are now, but are intent on discovering what they might become. In every case, however, attempts to define the self result in certain beliefs about the self, or what we shall refer to as a "self-image" or "identity."[1]

The first section of this essay will examine some of the interpersonal aspects of *self-evaluation*. Our primary focus will be on *re-evaluation* of self, or the possibility of change in level of self-esteem after adolescence. However, the section begins with a discussion of the initial development of self-esteem, and an examination of some critical elements of parent-child interaction. After a description of several possible outcomes of early relationships, we turn to a consideration of strategies for maintaining self-esteem. The first section closes with a consideration of self-exposure as a strategy for testing possibly invalid assumptions about self-worth, and an examination of some problems involved in obtaining useful "evaluative" feedback.

The second section of the essay examines the relevance of interpersonal relationships to the process of *self-definition*. The section begins with a brief examination of some ways an identity is formed, and then takes up problems of maintaining an identity or self-image. The second section closes with consideration of the possibility of enlarging or extending one's personal identity. The concept of "self-lessness" and the role of "descriptive" feedback from other persons are discussed in this context.

SELF-EVALUATION

A. THE DEVELOPMENT OF SELF-ESTEEM

The basic unit of interaction that concerns us is a very simple one. One person acts and in doing so intentionally or unintentionally exposes a part of his self—something of what he is, or thinks he is, or hopes he is. A second person responds to the first person's act and to his exposed self. Very frequently his reaction conveys approval or disapproval, acceptance or rejection. In this simple unit of social interaction lies one of the keys to the process of self-evaluation.

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[1] "Identity," "self-concept," and "self-image" are used inter-changeably in this essay.

The process of learning about ourselves begins very early in life. Clearly not all of it involves social interaction. The infant explores his body and experiences recurrent organic sensations which lead to the evolution of a sense of bodily self. He interacts with his physical environment and learns the distinction between what is himself and what is not himself. But the infant also learns very quickly that some of his actions elicit responses of approval, attention, love. Others seem to go unnoticed. Still others are responded to with withdrawal, coldness, or irritation. As he progresses from infancy to young childhood, he discovers more and more evaluative elements in the responses of others to his behavior, or to his self.

The result of these different responses to his acts soon becomes quite apparent. Acts that elicit responses of attention or approval or affection tend to occur more and more frequently. Behavior that elicits withdrawal or coldness or rejection occurs less and less frequently.[2] Gradually the overt personality of the child, as manifested in his behavior, is shaped by the people with whom he interacts.

However, because of the human capacity for self-consciousness, the process of personality-formation is not entirely a matter of simple reinforcement. The child's patterns of behaviour arouse responses *within himself* leading to a set of perceptions of himself which become stable. Once a self as a stabilizing concept begins to emerge, the child associates certain of his acts with this self, even if others ignore or punish them. In this case the acts may become a covert part of the child's self, and others' responses to those acts become judgments of parts of the child's self.

Most of us who are parents set an impossible task for ourselves: we want our children to believe that our love for them is unconditional but we also want them to behave in a reasonably acceptable manner. To accomplish the latter we must respond differentially to their behaviors, to the different parts of their selves that are manifested in their behavior. We must communicate approval in response to some, disapproval in response to others. A child must inevitably experience our disapproval as a withholding or withdrawal of love, *and therefore our love as conditional*, regardless of our intentions and real feelings.

It may be helpful to think rather crudely of the evolution of a "good self" and a "bad self." We behave, and in doing so we always manifest or expose a part of our self. In some cases our behavior elicits a response from others that we perceive as accepting, approving, loving. Thus we learn that certain parts of ourselves are acceptable and lovable. Subjectively, we experience these parts of ourself as our "good self." In other instances, our acts elicit reactions we perceive as disapproving, rejecting, unloving. When this happens we learn that certain parts of our self are not acceptable or lovable to others. These we experience as our "bad self."[3]

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[2] There are, of course, exceptions to this general tendency, such as when a child resists or aggresses against his parents, or tests their love by being "bad," or more pathological cases where the child acts in order to obtain a response—any response—in order to establish an *existence*, regardless of the evaluation of these elicitative acts.

What we have described is congruent with Freud's notions about self-esteem or self-love as outlined in his paper, "On Narcissism: An Introduction."[4] Freud argued that the infant cathects his ego, or loves himself as he is. Thus he is completely acceptable to himself and his self-love or self-esteem is maximal. However, as the infant becomes a child he learns the difference between what he is and what his parents (and society) want him to be. He learns that certain parts of himself are no longer acceptable and lovable to his parents. Two things then happen. First, his libido deserts his ego and cathects an idealized image of his self that he feels would be completely accepted and loved by his parents, i.e., his ego ideal. He no longer loves and accepts himself for what he is, but rather loves and accepts himself only to the extent that he approximates his ego ideal. Effectively, then, the acceptance or rejection of others determines his acceptability to himself, or his self-esteem. Second, he tends to repress or suppress those parts of his self that are not consonant with his ego ideal. They become his "bad" self, unacceptable and unlovable to others and thus to himself.

Types of Outcomes of Parental Strategies. Generally speaking, we can conceive of three types of outcomes of early experiences with acceptance and rejection :

1. A person may learn that no matter how he behaves or tries to "be," he cannot be assured of the love and esteem of other people. He becomes convinced of his own worthlessness, or at the very least, has serious doubts about his lovability. Maternally deprived and rejected children will often fall in this category.

There are several behavior patterns we might expect from the individual with very low self-esteem. He may simply give up. This might take the form of deep depression and suicidal tendencies, or of acting out good and bad impulses alike without regard for the reaction of other people or of society generally. Such a person might exhibit his "bad self," either to confirm his feelings of worthlessness or to receive the punishment he feels he deserves.

The person who has not given up, who has accepted himself as a person with some worth, will behave quite differently. He may expose to other people as little of his self as possible to avoid the feedback that will confirm his fears. Or he may behave narcissistically by exposing only the best things about his self, or things that are not really his self at all, and demand the approval and love of others. But as long as there is a glimmer of hope, exposing much of his real self is a terrible risk because one bit of negative feedback, real or perceived, may serve to extinguish that glimmer.

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[3] Those parts of the "bad self" which we selectively *inattend-to* would comprise what Sullivan calls the "not self."

[4] S. Freud, "On Narcissism: An Introduction," in *Collected Papers*, Vol.IV, Joan Riviere (trans.) (London: Hogarth, Press, 1956).

2. A second outcome of early experience, at the opposite extreme from the first, is to learn that love is unconditional, that whatever one does or feels—or *is*—he is loved and is therefore worthy of love. In our society, given the socialization practices we employ, this outcome is rarely observed. A person with such high self-esteem will be capable of responding naturally and spontaneously, as a whole person, in any situation. The possibility that relationships after childhood can lead to such an outcome will be discussed later in this essay.

3. It is with the third outcome, somewhere between the first and second, that most of us must live. We have learned that we are loved and are worthy of love at certain times but not at other times. Whether we are loved or not depends on how we are behaving, what parts of our selves we are exposing. As we pass childhood this becomes translated into a feeling that certain things about us are acceptable and lovable, whereas other things are not. This outcome tends to be associated with several behavioral strategies designed to maintain or preserve self-esteem.

B. MAINTAINING SELF-ESTEEM

The feeling or expectancy that if someone knew evrything about us they could not accept or love us has profound implications for behaviour. There appear to be three primary effects. First, it leads to a tendency to *hide* those parts of our self which we feel are less than totally acceptable. We relate to others as part persons rather than whole persons.

Second, the feeling that parts of our self are unlovable often results in a tendency to *pretend* we are something we are not, to wear masks, to erect facades.[5] Pretending has a number of advantages over hiding. For one thing it includes hiding; we can play a part that does not include "bad" parts of our self. We can even act out or expose our

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[5] Carl Rogers in *On Becoming a Person* (Boston: Houghton-Mifflin, 1961), chap. 18, subsumes both hiding and pretending under the more general heading of "incongruence." People are incongruent, according to Rogers, when there is a lack of correspondence or match between (1) what they are experiencing and their awareness of it, or (2) their awareness and what they communicate about their awareness to other persons. In the first instance they are hiding from or deluding themselves; in the second they are hiding from or deluding others.

"bad self," but as part of the role we are playing, not as part of us.[6] If we are rejected while playing a part we are comforted by our belief that it is not our real self that has been found wanting.[7]

Third, doubts concerning self-worth encourage *cautious and ritualized behavior.* To respond spontaneously and naturally involves the risk of unintentional exposure of "bad" parts of the self and the possibility that fears of unacceptability will be confirmed. Thus there is a tendency not to be spontaneous or natural but to be guarded and deliberate in any new situation that may arise. Often persons who are reserved or aloof are in fact exercising caution.

All three of the effects described above are essentially strategies designed to avoid the rejection anticipated if more of the self were visible to others. Fear of rejection in this case stems not so much from the possible frustration of affiliative needs as from possible confirmation of the person's fears of being unacceptable to others. Maintaining self-esteem is a life-long concern for most of us, and for many of us the possibility of even a single instance of rejection by another presents a terrible threat and one has to be carefully guarded against.

C. RE-EVALUATION OF SELF

1. *Self-Exposure.* The same strategies or behaviour tendencies that serve to maintain self-esteem also prevent any real self-growth. There can be no basic change in self-esteem without testing the assumption that if others knew certain things about us we would be unloved. That assumption cannot be tested except by exposing all of the self to others and observing their reaction. We may discover that others accept and love us even after we have exposed our "bad self" to them. If so, relearning or re-evalualion of self can occur, leading to a greater sense of personal worth. Of course, we may also have our fear that we are unworthy of love confirmed by others and thus experience a loss of self-esteem.

2. *Validity of Assumptions about Self-Worth.* What chance is there that a person's doubts about his self-worth are realistic ? If his doubts are unwarranted, testing through self-exposure should logically lead

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[6] Erving Goffman focuses on impression making and pretense in his book, *The Presentation of Self in Everyday Life* (Garden City, N. Y. : Doubleday Anchorn, 1959). In his brilliant paper, "On Face-Work: An Analysis of Ritual Elements in Social Interaction," (page 226, this volume) he analyses social rituals that facilitate both "hiding" and "pretending."

[7] Helene Deutsch analyses some of the subtle dynamics of pretending and being exposed in her excellent paper, "The Imposter: Contribution to Ego Psychology of a Type of Psychopath," (Page 278, this volume).

to their dissipation or extinction. But if they are realistic fears, greater exposure of self may lead only to their reinforcement and a further loss of self-esteem.

There are several reasons for expecting doubts about self-worth to be unrealistic, mostly stemming from the fact that the most serious of these doubts originate in infancy and early childhood. First, some of the most persistent assumptions about the acceptability or unacceptability of parts of the self are formed before the child's faculties for making fine discriminations have fully developed, resulting in a tendency for him to over-generalize.[8] For example, a child who feels threatened with loss of love for hitting other children may "learn" to believe that any of the aggressive impulses he feels make him unworthy of love.

Second, a child cannot be objective about his parent's love for him and may see the threat of loss of love where in fact it does not exist. His perceptions may be distorted or artistic due to immature notions of causality, a vague conception of time, intense affect, or a simple lack of experience and the perspective it provides. This can lead to invalid assumptions, as when a child assumes that something he did caused his mother to desert him, when in fact she had to go to the hospital.

A third reason we can expect many assumptions about self-worth to be invalid is that they are frequently based on the reactions of just one or two persons, usually the parents. Parents may find something about their child unacceptable because they are intolerent and not capable of loving any other human unconditionally, or because the child has become involved in his parent's neurosis.[9] In other cases, changing standards of behavior make it impossible for parents to accept their children, and for their children to accept themselves. Because of changed attitudes toward sex in our society, for example, strictly brought up young people often experience guilt and loss of self-esteem for behaving in ways that are unacceptable to their parents but perfectly acceptable among their peers.

Finally, the simple fact that what may be quite unacceptable in a child may be acceptable or even desirable in an adolescent or adult may lead to incorrect assumptions about self-worth. A child may feel threatened by loss of love if he is willful or overly independent as a child. However, this same independence in the male adult may lead to acceptance and success.

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[8] For an illuminating and thorough discussion of the characteristics of learning that occurs during infancy and early childhood, see D.C. Mc Clelland, *Personality* (New York: Holt, Rinehart an Winston, 1951), pp. 441—58.

[9] For an enlightening discussion of neurotic interaction between parent and child, see E. Vogel and N. Bell, "The Emotionally Disturbed Child as the Family Scapegoat," in this volume, page 80.

To summarize, the probability that an individual's doubts about his self-worth are based on adequate evidence of his unacceptability to a number of relatively unconflicted persons who know him well is very low.

3. *Evaluative Feedback.* By "evaluative feedback" we mean social cues or "reflected self-appraisals" useful for evaluation or reevaluation of the self. Not all persons are concerned with self-improvement. Persons with low self-esteem, for example, are primarily concerned with *reassurance.* They tend to search others' responses to them only for clues of approval or disapproval, acceptance or rejection. Narcissists seek the compliments, admiration, and applause of other persons in a desperate and continuous effort to dispel doubts about their ultimate worth as human beings. There is little concern among such people for realistic self-appraisal or self-improvement.

For most persons, however, evaluative feedback serves a potentially useful function. Through self-exposure and feedback persons can test assumptions about their acceptability or lovability and thereby develop greater self-esteem. Evaluative feedback makes it possible to develop and maintain a realistic conception of one's competencies and liabilities, strengths and weaknesses. Finally, evaluative feedback serves as a basis for self-improvement; unless we become aware of our weaknesses and shortcomings, we cannot set about overcoming them.

There are two general classes of social responses that people tend to use as feedback for purposes of evaluating self-worth. When people interact, however formally or impersonally, they frequently give off very subtle cues regarding their feelings about the other person. We can call this *indirect feedback.* The second class, which we will call *direct feedback,* consists of verbal statements explicitly describing one person's perceptions of or reactions to another.

There are several points of interest concerning the nature and use of indirect feedback. It is often ambiguous. A smile may be a polite social habit, but it may also convey warmth and approval. Aloofness may indicate disapproval, but it may also indicate an individual's fear of intimacy. The problem of ambiguous feedback is magnified by the fact that people tend to see what they expect to see, to be particularly sensitive to those cues in their environment which confirm their expectancies. Thus, if a person expects others to find him unacceptable, he will tend to see smiles as polite only and aloofness as rejection.

Indirect feedback tends to be overgeneralized. The feeling that we are being rejected, if the cues are subtle, may develop gradually. If so, it is difficult to associate someone's rejection of us with a specific act, or one small part of our self that we exposed. Rather, we tend to experience the incident as a rejection of our whole self, or all those parts of our self about which we have doubts.

Indirect feedback does not allow for justification or explanation. It frequently happens that we find something about another person unacceptable until we understand why he is that way, until he has a chance to explain his self to us.

Just as frequently the feedback may reveal more about the giver than the receiver. If inaccurate feedback is communicated indirectly, there is little chance it will be questioned or corrected by others. If the reason for another's reaction to us cannot be openly explored, there is no way to determine whether or not the feedback was justified.

It should be clear that indirect feedback is not very useful, and can be harmful, for purposes of self-evaluation. The person receiving the feedback must draw inferences from subtle, often ambiguous, cues without the opportunity to explore the exact meaning of or reasons for the feedback.

Direct feedback is potentially more useful for evaluating self-worth. However, even direct feedback can be useless if it does not reflect frank appraisals or reactions.

One major reason for lack of frankness is our cultural taboo on criticizing another person, particularly to his face. We tend to admire people who claim, "There is some good in everyone, and I look for that," or, "If I do not have something good to say about someone, I do not say anything at all."[10] These are high-sounding sentiments, but they also convey the message that it is wrong to look critically at another person and even worse to communicate criticism. Maslow has noted that even our definitions of love do not ordinarily include the obligation to feedback or criticize.[11]

One result of our tendency to say only positive things to each other is that we cannot really trust others to be honest with us. If people suppress their criticism and look for something polite or tactful to say, even positive feedback becomes suspect and therefore of little benefit. It is little wonder that we often are not comforted by others' reassurances that they accept and love us despite what we have exposed of our self.

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[10] A parallel to this is the anti-intellectual component: "What I don't know won't hurt me", "Let sleeping dogs lie," etc.

[11] A. H. Maslow, "Summer Notes on Social Psychology of Industry and Management at Non-Linear Systems, Inc., Del Mar, California," unpublished manuscript (1962).

Maslow goes on to point out the irony of our willingness to let someone go on making the same mistake over and over, ostensibly out of kindness, but realy because we are afraid of hurting him and being struck back. As contrast, he cites the Bruderhof where one aspect of Christian love is to be honest with others, even when it hurts. If a faculty member is a bad teacher because he mumbles on and on it is considered to be a brotherly duty, and an expression of caring, to tell him so (*ibid*, pp. 5-6.)

Retaliation is one main factor that inhibits feed back. Another is the danger that if one exposes a perception or feeling about another, he *may* have to change it. Or even more: he may have to get *closer* to the target of criticism. (In the essay introducing Part I, we pointed to the "distancing" function of the stereotype—or untested perception.)

Because of the taboo we place on face-to-face criticism, negative feedback tends to be accompanied by strong emotions on the part of both giver and receiver. Many persons will level criticism only if they first become angry. As a result we learn to react defensively or strike back, responding to the threat we have learned to associate with criticism. Because of our emotional response we tend to experience the criticism as a rejection of our whole self and thus something to be warded off or discredited at all costs.

We cannot blame the scarcity of direct evaluative feed-back entirely on social custom. Frequently people ask others to evaluate them, but at the same time give off subtle cues that they do not really want to hear anything other than reassurance. On the other hand, we sometimes withhold feedback because we do not want another person to change. We get used to others being the way they are, our relationships with them stabilize and become comfortable, and we may even obtain satisfaction from their weaknesses and imperfections. In fact it is likely that we use other people, particularly hated or scapegoat targets, in a defensive way to keep our own anxiety at a minimum. Evaluative feedback, even though it might be helpful to the other person, would only upset a satisfying relationship. Finally, people are frequently *afraid* to offer even helpful criticism. They are afraid that they might hurt the other person and/or might be hurt themselves by an act of retaliation on his part.

4. *Facilitating Relationships.* The prototype of a relationship that facilitates positive self-re-evaluation or increased self-esteem is one in which unconditional love is combined with direct feedback.

Some relationships between adults come to approximate this state. A relationship of this sort begins when people trust each other enough to start exposing more and more of themselves to each other. Each person exposes his self in small increments, tentatively, waiting for a response. If the response is disapproval or rejection, the relationship freezes at that point, is terminated, or the testing begins anew. If each exposure is met with acceptance, there is a continual build-up of trust, a growing confidence that they will not hurt each other intentionally. The process is mutually reinforcing, since when one person trusts enough to make himself vulnerable by exposing himself, trust is generated in the other person.

A successful relationship from the standpoint of an increase in self-esteem is one where the individuals are committed to openness and trust in their human transactions, and find themselves accepted or loved. There is concrete evidence of each individual's acceptability, with a corresponding increase in self-esteem.

Let us briefly summarize what we have said about the process of self-evaluation. Experiences with acceptance and rejection during infancy and childhood are basic to the development of our self-esteem as adults. However, re-evaluation of self with a consequent increase in self-esteem can occur after childhood, usually as a result of testing assumptions about self-worth through exposing the self to others and obtaining feedback. Relearning of this type depends primarily on direct feedback that is both honest and unambiguous. Thus, while exposure of self can be an effective strategy for confirming self-worth, it must occur in the context of a relationship that can tolerate honest expression of feelings.

SELF-DEFINITION

In this section we are concerned with a second major component of self-confirmation—the process of self-definition. Every person has certain beliefs about who or what he is; taken together, these beliefs are a person's self-image, or identity. Here we shall focus on interpersonal processes that bear on how such beliefs are formed, how they are maintained, and how they change.

A. IDENTITY FORMATION

Erik Erikson has defined identity formation in the following manner: ". . . . identity formation. . . is a lifelong development largely unconscious to the individual and to his society. Its roots go back all the way to the first self-recognition: in the baby's earliest exchange of smiles there is something of a self-realization coupled with a mutual recognition."[12]

With respect to identity formation, it may be useful to examine some ideas of G.H. Mead, who perhaps more than any other theorist before or since views the self as predominantly a social product. Mead[13] emphasized the importance of face-to-face interaction with others: from the time we are very young children, we constantly act toward others and they respond to us. One result of the continuous exchange between ego and alter is that we learn about our selves; each act directed toward us contains cues about how others see and experience us as individuals. Thus our beliefsabout our self, our self-image, are in large measure a reflection of others' perceptions of us. The phrases "looking-glass self" coined by Cooley and "reflected self-appraisal" by Sullivan are graphic statements of this process.

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[12] E. Erikson, "The Problem of Ego Identity," in *Identiy and Anxiety*, Stein, Vidich, and White (eds.) (Glenocoe, Ill.: Free Press, 1960), p. 47.

[13] G. H. Mead, *Mind, Self, and Society* (Chicago, Univ. of Chicago Press, 1934).

Not all beliefs about self are formed as a result of face-to-face interaction. Festinger[14] has used the term "social comparison process" to describe another way people appraise and evaluate different aspects of their selves. In some cases it may be more efficient, or less risky, to compare our self to another person whose social stimulus value is known to us. In this way, we may develop certain beliefs about our selves without benefit of direct feedback from other persons. It seems probable that as we pass from childhood into adolescence and adulthood, more and more of our beliefs about our self are formed indirectly, through some form of social comparison process.

B. MAINTAINING AN IDENTITY

Festinger[15] has distinguished between what he calls *physical* and *social* reality. Beliefs and opinions about physical reality can be validated by physical measurement: we can test our belief that glass is fragile by striking it with a hammer. Social reality cannot be tested by physical means. There is no physical measurement, for example, that can tell us decisively whether Republicans or Democrats are most adept at handling problems of foreign policy. Festinger goes on to assert that beliefs, attitudes, or opinions about social reality are correct, valid, or proper only to the extent they are anchored in a group of people with similar beliefs.

Many beliefs about self fall into the category of social reality. There are no physical means of determining whether we are in fact a leader of men, good-looking, or exceptionally tactful. Therefore, validation or confirmation of many beliefs about who or what we are must ultimately depend upon social consensus.

There are at least two varieties of beliefs that must be socially validated and confirmed if an individual's self-image or identity is to remain secure: (1) beliefs about the self, about who and what we are, and (2) beliefs about the nature of social reality.

1. *Beliefs about Self.* An individual's self-image is confirmed when other persons' responses to him indicate that their beliefs about who

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[14] L. Festinger, "A Theory of Social Comparison Processes," *Human Relations*, Vol. 7 (1954), pp. 117-40.

[15] L. Festinger, "Informal Social Communication," *Psychological Review*, Vol. 57 (1950), pp. 271-82.

and what he is correspond with his own. There is a mutual recognition of his self, and the validity of his self-image is confirmed. Under conditions that provide consistent social confirmation of all aspects of the self, a strong and integrated identity or self-image will develop and be sustained. As a result there is less need to search for responses that confirm the self,or to shield one's self from disconfirming responses. There is greater freedom to respond spontaneously to a situation, to *be*, without a binding concern for the consistency or recognizability of the self-image that is presented. Operating from such a position of strength, a person can dare to *hear* feedback about who he is and what he is, and thus can continually test the validity of his beliefs about his self.

The psychological importance of maintaining a consistent self-image is evident from the existence of elaborate social rituals that function primarily to reduce the probability of disconfirmation, particularly in casual social contacts. "Being tactful," for example, consists essentially of responding to other people in a way that does not challenge the validity of the self they are publicly presenting. The two papers by Erving Goffman included in this volume[16] are excellent analyses of such rituals.

The "identity diffusion" and uncertainty that results when the self is not confirmed by others, or when it is disconfirmed, has been described by a number of authors. In his moving essay, "The Therapeutic Despair,"[17] Leslie Farber writes of his *despair* when a patient refuses to confirm him in his role as therapist or healer by getting well. Erik Erikson has suggested that *identity crisis* result when other people, or society, are willing to recognize a person only as something he cannot or does not want to be. He points out that social confirmation of *some* identity, even a negative one, is often preferable to a lack of confirmation and the uncertainty and confusion that results: ". . . many a late adolescent, if faced with continuing diffusion, would rather be nobody or somebody bad, or indeed, dead—and this totally, and by free choice—than be not-quite-somebody."[18]

Finally, in his perceptive and fascinating tale[19] about a young British Colonial Officer, George Orwell graphically illustrates the relationship between identity diffusion and *susceptibility to influence*. Unhappy with his role but desperate "... to avoid looking a fool," the young officer acts out the oft-quoted wisdom that "people become what you expect them to be."[20]

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[16] See page 226 and page 417, this volume. (Reference is to the volume from which this reading in drawn.)

[17] Included in this volume, page 249. (Reference is to the volume from which this reading is drawn.)

[18] Erikson, *op. cit.*, p. 62.

[19] Included in this volume, page 271. (Reference is to the volume from which this reading is drawn.)

2. *Beliefs about Reality.*[21] It is important to most people to believe that they are rational and objective, that their world view is "realistic" and accurate. This element of self-image is confirmed through validation of various beliefs or assumptions about the world. When these beliefs and assumptions involve social reality, their validation depends upon interaction with other persons who share a common image of the nature of reality.

Confidence in one's self as someone who has valid beliefs about the nature of reality is prerequisite for discovery, for daring to see the world in new ways. We depend on people with such confidence to lead in defining and redefining social reality, to raise questions even about beliefs supported by social consensus. Persons who lack confidence in the validity of their perceptions and beliefs will feel pressures to conform, to accept the beliefs of others as more valid than their own. However, in a heterogeneous society no man can be a complete conformist; the validity of many of our beliefs is challenged by the different beliefs of other people, other groups. Nevertheless, the effort we expend to make sure we have some social support for our views is evidence of our dependence on shared perceptions and beliefs for confirmation of a core part of the self.

One of the most common ways we confirm our views that are not universally held is by associating with people who *do* share and thus confirm our perceptions, attitudes, opinions, and beliefs. Persons who have lived for an extended period in an alien culture often speak of their relief at having their world view confirmed upon their return home. Festinger, Riecken, and Schachter[22] and Hardyck and Braden[23] have provided penetrating descriptions of the reactions of apocolyptic groups to disconfirmations of some important beliefs and expectations. In the case of member of the "Lake City" group described by Festinger *et al.*, the reaction to disconfirmation was to proselytize and attract new members to the group in order to restore the individual's confidence in his beliefs and thus prevent identity-diffusion, if not disintegration. In contrast, the highly cohesive "True Word" group discussed by Hardyck and Braden apparenetly provided the social confirmation required for individual members to maintain their beliefs in the face of physical disconfirmation without proselytizing. In both cases, however, one clear implication is that lack of confirmation of important beliefs about the environment threatens certain beliefs about the self and leads to defensive rather than reality testing strategies.

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[20] See the essay introducing Part III for a more complete discussion of the relationship between self-confirmation and susceptibility to influence or personal changes.

[21] In this part we are focusing on social processes relevant to definition of self. See the description of a 'Type B" relationship in the essay introducing Part V for a discussion of interpersonal processes which lead to both self-definition and definition of external reality.

[22] L. Festinger, H. W. Riecken, Jr., and S. Schachter, *When Prophecy Fails* (Minneapolis: Univ. of Minnesota, 1956).

[23] Page 342, this volume. (Reference is to the volume from which this reading is drawn.)

People also respond to a lack of social support or confirmation of their perceptions and beliefs by changing them to conform to those of their most salient reference group.[24] The paper by Schachter which follows this essay provides unusual documentation of the way people use very subtle social cues to "test reality" and to adjust the appropriateness of their emotional responses.

C. IDENTITY EXTENSION

In this section we are concerned with identity change, specifically the growth or extension of identity or self-image.

1. *Self-realization.* The verb "to realize" has more than one meaning. Among other things, it implies both *knowing* and *making concrete or real*, suggesting two ways that a self-image might be extended. Self-realization, as we conceive of it, involves both becoming consciously aware of the self as it presently exists, and extending the self to include latent potentialities. The discussion of self-esteem in an earlier section of the essay is directly relevant to the first aspect of self-ralization: self-awareness. There we suggested that doubts about self-worth can lead to repression as well as suppression of certain parts of the self; hiding, pretending, and caution are strategies for self-delusion as well as for deluding others. Here we are more concerned with self-realization in the sense of discovering what the self *can* be.

2. *Self-realization through "Selflessness."* For us, the key to self-realization, to discovering what the self *can* be is selflessness: we become our self only as we can forget our self. Fingarette has described selflessness in the following terms:

> . . . "Selflessness" is a characteristic mystic concept associated with the "enlightened" state. . . It does not mean the absence of a self in the psychoanalytic sense of that term, nor does it refer to the absence of the ego or of the "self-representations," or to the loss of ability to distinguish "inner" and "outer" as in hallucination or estrangement

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[24] See the essay introducing Part III. (Reference is to the volume from which this reading is drawn.)

> . . . "Selflessness," being a term in a "subjective" language, expresses the lack of conscious awareness of self. But this is true in a sense which cannot be made unambiguous in ordinary language. We can point to the unawareness in question by referring to its psychological conditions: it is that "normal" unselfconsciousness characteristic of experience which is primarily non-anxious and motivated by neutralized drives functioning within the non-conflictful portions of the ego. It is an unselfconsciousness akin to the normal unawareness of our breathing.[25]

A person capable of selflessness must be sure enough of his worth as an individual, self-accepting enough, that he does not need to hide, or pretend, or be cautious; instead he can respond openly, spontaneously, and naturally to new situations and new people. Only by temporarily suspending the conscious desire for consistency, the need to be what we know we can be successfully and safely, can we find out what *else* we might be. Only by responding *unselfconsciously*, momentarily freed from too great dependence on what we have been, can we discover what variety there is within us.

It should be emphasized that while selflessness connotes a lack of conscious awareness of self in action, it is a *suspension* of awareness, not the incapacity to be aware. It is this distinction that differentiates the person capable of selflessness from the schizophrenic. Although the term "selflessness" often has been used to describe only the rather esoteric states of the religious mystic or drug addict, it is probably that most persons with some "non-conflictful portions of the ego" can behave selflessly, or unselfconsciously, in some situations.

Selflessness also implies the capacity to observe one's self in a detached and objective fashion. A person's first impulse in the face of critical feedback from the environment is to defend the self, to preserve the status quo, to look out for his self-interests. Under these conditions it is difficult, if not impossible, to evaluate feedback objectively and use it constructively. Selflessness, on the other hand, suggests the capacity to become temporarily detached from one's self, to stand back and look at the self as another person might. If the ability to behave unselfconsciously is the first step toward identity extension, then the capacity to view our behaviour objectively is certainly the second.

3. *Facilitating Relationships.* Selflessness and self-realization can occur to the degree that a person feels worthy in a relationship. The parties to the relationship will feel that they are accepted, that the other has

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[25] H. Fingarette, "The Ego and Mystic Selflessness," in *Identity and Anxiety*, Stein, Vidich, and White (eds.) (Glencoe, Ill.: Free Press, 1960), pp. 580-81.

made a positive decision concerning their value of them. There will be a feeling that this decision is final and will stand in the face of any new aspects of the self that might emerge.

Furthermore, the persons involved will feel they are accepted for what they are; their images of each other will neither be too grandiose nor too modest. Expectations of each other will be realistic.

Finally, there will be an implicit assumption that one person will not deliberately hurt the other to satisfy his own needs, a quality of a relationship often called *trust*.

It appears, therefore, that self-definition and self-evaluation interact with each other. The person has to be something in order to be evaluated, and the person has to be positively evaluated in order to be something new.

In the papers that follow this essay, Carl Rogers and Kenneth Benne describe with considerable insight and wisdom some characteristics of interpersonal relationships that further selflessness and self-growth.

4. *Descriptive Feedback*. Learning about ourself from others' responses to us does not stop with the end of childhood and the initial development of a sense of identity. During our discussion of self-evaluation, we suggested that low self-esteem is associated with a tendency to perceive only the evaluative elements in others' responses to us—the approval or disapproval, acceptance or rejection. The need to maintain a certain level of self-esteem seems to take precedence over all else, and doubt about self-worth stimulates "selfishness" or "selfconsciousness," rather than selflessness. Most people, however, at least in some areas can become temporarily self-detached to observe the reactions of others to their self. They can go beyond the evaluative feedback to the descriptive cues that can help them discover *what* they are rather than just how acceptable they are.

The distinction between indirect and direct feedback, made in connection with evaluative feedback, is also relevant here. However, whereas indirect feedback is of little use, and may even be harmful, for purposes of self-evaluation, it plays an extremely important role in self-definition. Others' responses to our behaviour, often nonverbal, may contain information they might not be able to express more directly. Nevertheless, it frequently is not enough. Persons who attend human relations training laboratories such as those sponsored by the National Training Laboratories[26] almost invariably express a desire to be told point blank how other people perceive them. This is particularly true of persons with a relatively strong sense of personal worth who are not worried about, or even particularly interested in, others' *evaluations* of them.

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[26] See W. G. Bennis, and E. H. Schein, *Laboratory Training: Theory and Practice* (N. Y.: Wiley, 1964), for a description of laboratory training.

The shortage of useful descriptive feedback stems partly from difficulty in predicting whether the person to receive the descriptive feedback will respond to it as just that, or whether he will scan it only for its evaluative content. Psychologists face this problem when they try to feed back the results of psychological tests; teachers face a similar dilemma when they discuss a student's work with him, or counsel a student on possible careers. All too often persons who want and can make good use of descriptive feedback are denied it because the person who might help them has had a bad experience with some one who could hear only the evaluative elements in the feedback he was given.

SUMMARY

This essay represents an attempt to point up some of the interpersonal aspects of self-confirmation. We have focused on self-evaluation and self-definition as two processes critical to self-confirmation and having important interpersonal ramifications. Rather than try to draw conclusions, it seems more appropriate to close with an illustration that dramatizes many of the points we have made.

> As part of a research project, forty-five young managers in a large utility company were interviewed extensively about their career problems. Nearly all of the men had been hired right out of college as management trainees, and had been working for this particular organization for six years. As one might expect, a variety of complaints and problems were unearthed, but one in particular stood out because of the intense frustration associated with it.
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> Several of the young managers had been quite successful up to the time they began their business careers, and as a result they had no reason to believe they would not continue to be successful. Each had, at the beginning of his career, rather high expectations of what he would accomplish. The image each had of himself was that of a highly competent person who would rise to the top among a group of his peers.
>
> Before long, however, their experiences in the company began to challenge their self-images. They did not move ahead particularly fast, only keeping pace with or falling behind the majority of their peers. This experience was quite at odds with the expectations they had. The environment offered several possible rationalizations for failure. Because of a period of business regression, promotions

were frozen. The company was automating various functions, cutting back on the total number of employees and thus the number of management positions. The company was consolidating small work units into larger ones, giving more responsibility to individual managers, but eliminating managerieal positions in the process.

The basic dilemma these men expressed was whether or not in the face of feedback from their environment they should re-evaluate themselves and re-adjust their self-images to be more consistent with the cues they were receiving. Many of their colleagues were quick to perceive and accept the evaluative cuses contained in the company's response to them and to re-evaluate themselves accrodingly. Others, less confident of their worth as individuals, sought only reassurance rationalizing or denying their predicament. These men could do neither, at least not on the basis of the impersonal and frequently ambiguous feedback available to them. They did express a desperate need for respected superiors to give them absolutely objective, point-blank feedback on their potential as managers. With honest, direct feedback they could trust, they felt they could decide whether to modify their selfimage appropriately, or to try to confirm their selfimage in another company. However, they were unable to persuade their superiors to be absolutely honest and open with them; the superiors apparently either felt they would be hurting rather than helping their subordinate by leveling with him, or they had been taught it was poor management. In any case, the organization failed to recognize the capacity these men had to use direct feedback constructively, with the result that the men in question were unable to resolve their dilemma.

Clearly there are no simple solutions to the dilemmas the young managers are confronting. Self-esteem and self-image are the hard core of personality, but we have little control over their development, and lack the knowledge and techniques to influence or alter them reliably. Recently, however, there has been an increasing awareness of the importance of interpersonal processess, and a growing concern with "creative human relationships," or relationships that facilitate personal growth. This section, indeed this entire book, is a reflection of that concern.

LAWRENCE S. KUBIE

Some Unsolved Problems of the Scientific Career

PROBLEMS ARISING OUT OF THE UNIVERSAL NEUROTIC PROCESS

It is my thesis that the life of a young scientist challenges our educational system from top to bottom with a series of unsolved problems which await investigation. Among these are certain subtle problems, arising out of unrecognized neurotic forces, which are basically important both in the choice and in the pursuit of scientific research as a career. It will not be the purpose of this paper to argue that every young scientist should be psychoanalyzed; and the reader is asked to keep this disclaimer in mind. Nevertheless, in any multidisciplinary investigation of these complex interrelated problems, I believe that the psychoanalytic study of a random sampling of scientists, both young and old, would be one of the essential instruments.

In this connection it will be argued that science in the abstract and scientists as human beings pay a high price for the fact that during the preparation of young people for a life of scientific research their emotional problems are generally overlooked. This discussion will not attempt to outline a full remedy for this neglect, for it would be premature to make such an attempt before more is known about the problem. Here again, however, in exploring possible remedies, a psycho-

Reprinted by permission in part from Lawrence S. Kubie, "Some Unsolved Problems of the Scientific Career," *American Scientist*, XVLI, 4, 1953.

analytic study of an adequate sample of young scientists would provide information which would help towards an ultimate solution. I hope that this paper will also contribute to a more general recognition of the fact that many young scientists require special help in their struggles for emotional maturation.

My own clinical experiences with this group suggest that the emotional problems which arise early in the careers of young scientists are more taxing than are those which occur in other careers. Yet without instruments with which to measure and compare these imponderables, this cannot be proved. Nor can it be claimed that the problems to be detailed below are peculiar either to science in general or to any special field of science. In fact, since the stresses which arise in different careers have never been systematically compared, it cannot even be determined whether or to what extent emotional problems vary from one career to another, either in degree or kind. Therefore, the reader may well ask why this paper is published before such investigations have been carried out. Its justification lies in the fact that such studies will themselves require a large investment of time, money, and trained personnel, none of which will be made available until responsible educators become convinced that such studies are essential enough to justify careful planning, a co-ordinated multidisciplinary approach, and generous financial support. Before such studies are made, all that we can do is to indicate fragmentary observations which suggest that it would be enlightening to make socio-economic studies of the lives of young and old scientists, plus psychoanalytic studies of a statistically adequate random sample of them.

These investigations would throw light on such problems as : (*a*) the special stresses both economic and psychological, which occur in the life of the young scientist; (*b*) the great variety of conscious and unconscious forces whose interplay determines a young man's choice of scientific research as a career; (*c*) the interplay of conscious and unconscious forces in his subsequent emotional and scientific maturation; (*d*) how the special stresses which develop later in life react upon the earlier emotional forces which originally turned him towards science; (*e*) how unconscious stresses influence the young investigators' general approach to scientific research and scientific controversy; (*f*) how the unconscious symbolic significance of particular scientific problems and theories can distort the logic and the judgment even of men of exceptional ability. This article will attempt only to illustrate the wide variety of problems which are relevant to these general headings.

As a personal note, I should add that my observations, both on myself and on colleagues in various fields of science, have been made at random over a period of nearly thirty years. They began in the twenties, when I was working in one of the laboratories of the Rockefeller

Institute. It became known that I had had some previous training in psychiatry. Presently I found that if I were to have any time for my own work I had literally to lock my door for a few hours each day. Otherwise, almost every afternoon, young colleagues and sometimes older ones would drift in to talk, not about scientific issues but about their personal problems. At that time, my psychiatric training and experience were limited, and I knew nothing at all about psychoanalysis. Yet these random and unsolicited revelations made it clear not only that, as one would expect, a scientist's ability to endure the prolonged frustration and uncertainties of scientific research depend on neurotic components in his personality (both masked and overt), but also that there are significant relationships between masked neurotic components in the personality of an apparently normal scientist, and such things as (*a*) the field of work which he chooses; (*b*) the problems within that field which he chooses to investigate; (*c*) the clarity with which he habitually uses his native capacity for logical thinking; (*d*) the ways in which he attacks scientific problems; (*e*) the scientific causes which he espouses; (*f*) the controversies in which he becomes entangled and how he fights; and (*g*) the joy or sorrow which is derived from the work itself and also from his ultimate success or failure. Thus over the intervening years I have seen men of imagination and erudition whose scientific lives were nonetheless baffled and unproductive, and also men with lesser gifts who seemed to function freely, creatively, and productively; scientists who were happy in spite of failure, and others who became depressed inspite of acknowledged and recognized success. Although such facts were new to me twenty-five years ago, they had long been an accepted part of human wisdom. This makes it strange that their deeper sources in human nature and their special importance to scientific workers have never been systematically explored. I cannot attempt such an exploration here, but it may be possible to make articulate the challenge to all scientists which lurks in these ancient and unexplored caverns of the human spirit.

I. *The Emotional Equipment Which the Young Scientist Brings to His Career*—The young scientist often reaches maturity after a lopsided early development. In this development he resembles many other intellectuals. A typical history is that an intellectually gifted child develops neurotic tendencies which hamper his early agressive and psychosexual development. If at this point he is intellectually stimulated by one or another of the emotionally significant adults of his life he is likely to turn away from athletics and the social life which he finds difficult to more bookish activities, thus postponing indefinitely any facing of earlier changes. If success rewards his consolatory scholarly efforts during adolescence, he may in later years tend to cultivate intellectual activity exclusively. In this way absorption in the intellectual life will frequently be paralleled by an increasing withdrawal from athletic and social and psychosexual activities. As a result, by the time adult life is reached his only triumphs and gratifications will have been won in the intellectual field, his range of skills will have become restricted, and the life of the mind will be almost the only outlet available. Because of the extra drain of the laboratory on the student's time, the young man who sets out to become a scientist spends his adolescence putting every emotional egg in the intellectual basket to a greater extent than is true for most other young intellectuals. By such steps as these, the sense of security and the self-esteem of the young intellectual come to stand on one leg; so that when research is begun he invests in it a lifetime of pent-up cravings. After such a development, it is inevitable that scientific research will be supercharged with many irrelevant and unfulfilled emotional needs; so that the lifework of the young scientist tends to express both the conscious levels of his intellectual aspirations and his unfulfilled instinctual needs and unconscious conflicts.

Even the most brilliant scientific successes cannot solve unconscious personal problems, nor gratify unrecognised instinctual pressures. Whenever anyone works under the whip-lash of unsolved unconscious conflicts, whether he is painting a picture, writing a play, pursuing a scientific discovery, or making a million dollars, the individual is prone to work with desperation. If there is failure, he blames unhappiness on his failure. But, to his amazement and dismay, he discovers that depression may follow success no less than failure. Basically, this is because success also leaves his deeper problems unsolved. If we always bear in mind that the pursuit of unconscious and often unattainable needs play a determining role in the intellectual career, the familiar phenomena of depression attending success would not perplex us. We should wonder rather at the shortsightedness of a process of scientific education in which self-knowledge is the forgotten man, and in which emotional maturation is left to chance.

II. *The Choice of a Career*—The aspects of this vexing problem which are peculiar to a career in science require certain general considerations. I suppose that it is not inaccurate to say that, of the many unsolved problems of human life, two which are of major importance are how to enable successive generations to learn from the mistakes of their predecessors without repeating them, and how to make it possible for young people to anticipate the future realistically. Not literature, nor the arts, nor formal education has solved these two problems, which are interdependent in every aspect of life. Both are relevant to the choice of a career. When a youth decides to become a doctor, a lawyer, a businessman, or an artist, the decision is not made on the basis of a realistic foreknowledge of what one of these careers would be like as compared to another, nor out of a deep introspective knowledge of himself and of how he would fit into the lifework he has chosen. Even if his own father is a lawyer or a doctor, he will have had an opportunity to observe only the outer aspects of that life, the dramtization of its activities; he cannot have felt its joys and sorrows directly. What he will have experienced vicariously through identification with his parent will depend less upon what that life was really like than upon how it affected him; and upon the subtle balance of conscious and unconscious, hostile and living components in his identification with the parental figure. Nor do adults know how to communicate the truth about their own adult lives to their children. Consequently, the adolescent's and even the college student's anticipation of the quality of life in any future career is dominated by fantasies. To a remarkable degree this is true even of more familiar and humdrum careers. The quality of adult living belongs to the remote and mysterious future; it is something the flavour of which the child cannot anticipate. Until this obstacle to communication between the generations is overcome, successive generations will continue in the future, as in the past, to make their choice in the darkness of fantasy and concussion. The child of a wealthy broker who was "on the street" took these words literally, as children do, and looked for his father in every pushcart peddler who passed. Although the visual misconception of the child was corrected as he matured, an emotional hangover remains which had an important influence in determining the choice of his subsequent lifework. Usually the less familiar the career which a young man chooses, the greater will be the importance of fantasies, both conscious and unconscious, among the forces which determine the initial choice of a career, and also the subequent adjustment, happiness, and effectiveness in the one selected.

One natural conclusion to be drawn from these considerations would seem to constitute an argument for the wider use of aptitude testing in the choice of careers. Actual experience however, and a hard-headed and realistic scepticism make one cautious about expecting too much help from these devices. The most extensive trials of the value of aptitude testing were the so-called "Stanines," which the USAAF developed during the war for the screening of air cadets and their allocation to training as pilots, bombardiers, and navigators. In terms of its relevance to this problem, I would summarize the results of this experience as follows :

(*a*) the tests of aptitudes were remarkably accurate as far as they went.
(*b*) It was possible to sort out those with the automatic speed and

motor skills and/or the mathematical precision needed for various tasks.

(*c*) Men were placed accurately on a point scale as to their relevant psychometric and neuromuscular capacities.

(*d*) In this way, the tests selected accurately a small group at one extreme, most of whom would succeed in training, and another small group at the opposite pole, most of whom would fail. (There were exceptions to the results even at both extremes.)

(*e*) As was to be expected, however, the vast majority of the men tested fell into the central zone of the normal curve of distribution, while only a relatively small percentage of tested population was placed at the two extremes.

(*f*) With rate exceptions, the individuals who fell into the extremes knew their own aptitudes and ineptitudes before going through any tests. From their experiences at play, in sports, in school, and on various jobs, they knew already that they were specially adept or specially maladroit with respect to certain types of activity. Indeed the representatives of the two extreme ends of the scale were usually able to describe their strong and weak points almost as precisely as these could be measured.

(*g*) Consequently, the tests are of greatest use when jobs are scarce in times of peace, or else in times of war when a lad may want desperately to be accepted by a special branch of the service for some particular position, and may therefore exaggerate his native skill or hide his native ineptitude. But at other times when there is no special incentive to deception (beyond the usual need for self-deception),the men at the end zones need no tests.

(*h*) The next important lesson of the entire experiment with the "Stanines" was that for the majority, who fall in great middle zone of the normal curve of distribution, although, while their minor variations in aptitudes can be measured with considerable precision by various "human engineering" devices, these variations do not determine either success or failure, happiness or unhappiness in a career. By exclusion, therefore, we may conclude from the results of the "Stanines," that for most of us (that is, for the Average Man) a subtle balance of conscious and unconscious forces determines how effectively we use our native aptitudes, whether intellectual, emotional, sensory, neuromuscular, or any combination of these aptitudes. For most of us it is not the minor quantitative differences in the machine itself, but the influence of these conscious and unconscious emotional forces on our use of the human machine which determines our effectiveness. For me this was the ultimate lesson from the experience of the Air Force with the "Stanines," and I believe, furthermore, that this result is what might be expected in any similar effort to predict success and failure in civilian careers by the use of precise aptitude tests alone.

This is the stumbling block against which the aptitude testers always stub their toes, and until they learn how to evaluate with equal precision the influence of unconscious emotional forces, they will continue to mislead young people into thinking that scores on aptitude scales will determine successes and failures, happiness and unhappiness in their lifework.

Although these unconscious, irrational, and symbolic forces are subtle and difficult to describe, they determine how most of us use our equipment, and the fate of our lives under conditions of success as well as failure. We shall attempt to discuss a few of these forces in relation to scientific problems and also to the life of science. To youngsters, the dream of a life of scientific research is charged with complicated and usually unnoticed symbolic connotations, which alter steadily during growth from youth to manhood. Therefore, what science "means" consciously to any mature scientist has as many unconscious layers as the stages of his interest in science. No valid generalizations can be made about this condition until many scientists have been studied analytically and the data collated.

Some of those who show scientific interest and capacity in their youth subsequently lose these qualities completely, whereas others pursue them throughout life. In only a few instances has it been possible to study the evolving symbolic connotations of a scientist's interest in scientific matters. In these few cases the "scientific" interests of early childhood frequently turn out to have been in part a window-dressing for quite different concerns. I cannot overemphasize the importance of keeping the fact in mind that human behavior is like a centipede, standing on many legs. Nothing that we do has a single determinant, whether conscious, preconscious, or unconscious. In singling out certain neglected unconscious symbolic determinants it may often sound as though I were overlooking all of the others.

This is only because I want to emphasize the importance of the unconscious forces, precisely because they have been neglected so consistently, and because, as a direct consequence of this neglect, they tend to be destructive.

One of these unconscious forces is the child's fearful and guilt-laden curiosity about the human body, both its tabooed external aspects and its mysterious inner workings. A familiar example of this force may be noted in the physician whose interest in medicine has some of its roots in the child's buried envy of the doctor who could gratify the forbidden bodily curiosities and enter the sickroom from which the child was excluded. How universal this drive would be, and how it would vary with the age of the child and the quality of his relationships to others cannot be decided by guessing. Nor can I document this forcefully without presenting a mass of clinical data for which there is neither time nor space. Somewhat scattered data, gathered during the occasional opportunities to make analytical studies of various kinds of scientists, have shown that even widely varying forms of scientific interest can serve as an acceptable cover for some of the forbidden concerns of childhood. Furthermore, this tendency to utilize various facets of the outer world as a symbolic projection of inner conflicts does not cease when the child becomes adult, but may continue throughout life. This fact is of more than academic interest, since the scientific activities of the adult can be distorted by the same unconscious childhood conflicts out of which his original interest in science may have arisen. Indeed this must result whenever adult activities continue to represent earlier conflicts, and projections of unconscious personal conflicts can often be recognized even through their adult scientific disguises in the reasoning and experiments of outstanding scientists.

As an example of the role of unconscious residues of childhood's battles, I would cite the gynocologist whose ancient and infantile curiosities were not to be satisfied by the justified activities of his profession, and who was plagued by an insatiable compulsion to visit burlesque shows. One could hardly ask for a better experimental demonstration of the fact that unconscious need cannot be gratified by conscious fulfillment. A comparable example is found in the X-ray man whose choice of a career was determined predominantly by his unconscious curiosity about the internal structure of his mother's body. In all innocence both man dedicated their lives to the service of childhood cravings which were buried in guilt and fear. It should be our goal to learn how to guide gifted young men so that they will not build their entire lives on such psychological quicksands.

III. *Neurotic Distortions of Scientific Research : General Considerations*— The first step in any program of scientific research is to observe natural phenomena while taking care not to alter these phenomena by the very process of observing them. In spite of the most meticulous care, however, the ever-present unconscious forces of the observer color in some degree the glasses through which he makes even simple observations. Therefore, it is out of such tinted observations that he develops his scientific theories. Initially, these are hypotheses about possible relationships between the observed data. Hypotheses are always more vulnerable to distortion by unconscious processes than are the primary observations themselves. Therefore the next step for the research worker is to test his theories, together with their inevitable distortions, in experiments which either isolate and quantify the original data, or that test the consequences of the derived theories. Without our realizing that this is occurring, the process of investigation tends in this way to balance the distortions introduced by unconscious bias. Once he has set up his initial experiments, however, the scientist again becomes an observer. Now, however, he no longer observes facts in nature, but rather in a milieu which he has created artificially by means of his experiment.

Each successive step in these scientific processes calls forth a greater investment of conscious and unconscious feeling; yet if the experimenter is to be objective about the outcome of his experiments he must somehow manage to climb out of his own psychic skin so as to be able to criticise his own handiwork. This is as essential to objective scientific work as it is to artistic creativeness, but it is never easy, because it is impossible for an investigator to prevent the intrusion of his unconscious biases into such sequences of experiment and observation.

Furthermore, even these steps constitute merely the foundation for another round of observation, theory, and experiment. From experimentally derived observations comes a second order of theories, in which unconscious biases have even greater weight; and these theories in turn must be subjected to new experimental tests, which require still further sequences of observation and of theory. Thus the structure of science adds layer on layer, each burdened by more subtle and complex unconscious emotional investments, demanding of the scientist an ever greater clarity about the role of his own unconscious processes in his conscious theories and experiments, and each requiring an ever more rigorous correction for the influence of unconscious preconceptions.

For none of this self-critique in depth does our educational process prepare us. Yet much of it was implicit in Claude Bernard's *An Introduction to the Study of Experimental Medicine* (1)* when he wrote: "The metaphysician, the scholastic, and the experimenter all work with an *a priori* idea. The difference is that the scholastic imposes his idea as an absolute truth which he had found, and from which he then deduces consequences, by logic alone. The more modest experimenter, on the other hand, states an idea as a question, as an interpretative and more or less probable anticipation of nature, from which he logically deduces consequences which, moment by moment, he confronts with reality by means of experiment."

Again in another connection, Claude Bernard pointed out that the scientist and the philosopher are subject to the same internal human laws, prey to the same emotions, prejudices, and biases, and that these operate equally in the philosopher and the scientist. The difference is that for the scientist the fact that a theory seems true to him, that it feels true, or even that it is logically or mathematically possible does not make it true. For the scientist, the theory is not true until he had taken it to the laboratory, "leaving his theories in the cloakroom," and subjected it to the ultimate test of the experimental method (6).

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*References at end of reading.

Other observers of the world of science have referred to this fact. Every scientist can read with profit and delight Charles Richet's spirited and witty *Natural History of a Savant* (7), and Gregg's sage volume of lectures on *The Furtherance of Medical Research* (2), both of which touch on these questions. More recently R. C. Tolman (9) referred challengingly to "the criteria for selecting diligent and competent scientists, the effects of personal bias on results, the relation between subjective origins and objective outcomes of scientific experiments."

This is a portrait of the ideal scientist, ideally in action. It implies that the subtle interplay of reason and emotion, and of conscious and unconscious forces, are as important in the lives and activities of scientists as of anyone else. If this is true then nothing could be more important to science than that scientists should know themselves in the neo-Socratic or Freudian sense, that is in terms of the interplay between their own conscious and unconscious processes. Yet, as we have already stated (4), in the education of the scientist, as of everyone else, self-knowledge in depth is the forgotten man of our entire educational system [Cf. Lombard, (5)].

Since the father of modern physiology, a great immunologist, a senior statesman among medical educators, and a great atomic physicist all have recognized the confusing influence of subtle psychological processes in scientific work, then surely it is time for the problem to be made the central focus of a major investigation, in which psychoanalytic techniques will be one of the essential tools.

The Distortion of the Creative Drive by Neurotic Forces

It is rarely recognized that research makes demands upon the young investigator which may exploit his neurotic vulnerabilities. For instance, a drive for "originality" may cloak a difficulty in mastering existing facts and techniques, or it may serve to disguise an unconscious hostility to all existing authority. How often is this drive for originality naively mistaken by teacher and student for creative scientific imagination? How often, therefore, is the young investigator encouraged to penetrate into new territory before he has mastered the terrain from which the expedition must start? It is no answer to these questions to say that the same misinterpretations occur among young artists, writers, and musicians. Fallacious values and goals are destructive whenever they occur and in many different fields of work. Nor does it lessen the significance of any of the examples which follow to dismiss them as psychopathological. Such pathology is only an exaggeration of what occurs in more subtle and disguised forms in everyone. The wider and more easily recognized deviations of pathology illuminate the "normal" for us, and sensitize us to slighter anomalies which we otherwise would overlook.

For instance, unresolved neurotic anxieties may impel one over-anxious young investigator to choose a problem that will take a lifetime or, alternatively, may drive another into easy, get-rich-quick tasks, which yield a yearly paper, a yearly acclaim, the yearly promotion. The former tendency to postpone the day of reckoning indefinitely occurs in the young scientist who deals with his anxieties by pretending that they do not exist. The latter is found in the man who finds it impossible to endure suspense and uncertainty for more than a few months. Neurotic anxiety can take either form; and young scientists frequently walk a tightrope between these two alternatives, that is between the annual piecework type of productivity and the long-drawn-out tasks which postpone indefinitely any ultimate testing of theories against experimental data and observations of nature.

Then there is the battle with phobic indecision over which task to undertake, or how to undertake it; and indecision which may arise not out of an inadequate mastery of specific facts and techniques, but from a general neurotic tendency to obsessional doubting. I have seen this symptom work identical destruction in the careers of young playwright who could not decide which of two equally good plots to use, and of a young chemist who could not decide which of two equally promising leads to follow.

There was also the scientist who had proved his case, but who was so driven by his anxieties that he had to bolster an already proven theorem by falsifying some quite unnecessary additional statistical data. This was a compulsive act, comparable to kleptomania by a wealthy man, or to the action of a successful and famous writer who suffered from a compulsion to insert a few words from someone else into everything he wrote.

Again, there is the scientist who is always pursuing a new scientific future. This occurs more frequently than is realized. One outstandingly able young scientist ran through five careers, abandoning each one after a brilliant start just as he reached the point of launching his own independent work. When he could no longer postpone accepting a professorship, he broke down and disappeared from the world of science.

But the most ubiquitous tragedy of all is the anxiety-driven scientist who lives on a treadmill—the man who has tasted what it means to gain temporary easement from his anxieties by doing a fine piece of scientific work, but who thereafter is driven not by a quest for further truth but by an insatiable need to repeat the same achievement in an effort to assuage anxieties whose origins were unconscious. This investigator uses scientific research precisely as the man with a handwashing compulsion uses soap and water, or as an addict uses drugs.

I cannot leave this phase of the problem without referring to one highly technical and complex issue. In psychiatry we recognize certain rough parallelisms between types of illness and types of personality. These can have comparable influence in research. During the exploratory phase, while crude data are being gathered, an investigator ought to be free from rigidity. He should be ready to abandon preconceived objectives and anticipated goals, so that any hints that come from unexpected findings can be pursued. He must be psychologically free to follow uncharted courses. Therefore, premature systematization of the data must be avoided. This requires that type of free and imaginative flexibility which is sometimes attributed to the so-called "hysterical" personality. Later a more rigid process is required, one which has some of the features of the obsessional neurosis, or even some of the tendency of a paranoid patient to organize his delusions into logical systems. Scientific research thus seems to require that, as the work progresses, the investigator should be free to operate now with one type of personality and now with another. It would be profitable to compare analytically the personalities of those scientists who can change in this way and of those who cannot, especially in relation to their scientific productivity. This would seem to be a problem of basic importance for the optimal use of scientific personnel.

Dr. Anne Roe has given me permission to quote a letter of September 13, 1952, in which she summarizes one of her unique studies in this field:

> Any brief summary of these data is necessarily inadequate, and the generalizations require qualifications; but certain differences among these groups of scientists show up, both on the test material and in the life patterns. These are most striking in interpersonal relations in the handling of anxiety and aggression, in the patterns on intelligence tests, and in the use of imagery.
>
> The typical physicist and biologist grew up with a minimum of group social activity, entered into hetrosexual activities rather later and is now not much interested in any social activities. The

psychologists and anthropologists for the most part were early conscious of their own and the family's social status, began dating early and enthusiastically, and are still enormously involved with other persons, one way and another. Both physicists and biologists show an unusual independence of parental ties, without guilt; and present attitudes toward the father are characteristically respectful, but lacking in closeness. Attitudes towards the mother are variable. Many of the psychologists and anthropologists, on the other hand, went through periods of great family dissension, and are still angry with or disparaging of their parents. I am sure it is significant also that in the families of these groups, the mother was most often the dominant character. This was rare in the other groups. The biologists, as a group, rely strongly and effectively on rational control. This appears in their lives, in their general unaggressiveness and in their unproductiveness and intense concern with form on the Rorschach. The physicists have a good deal of free anxiety, shown in their behavior and on the Rorschach, particularly in the large amounts of K and k. This is better controlled among the theoretical than among the experimental physicists. The *difference* between biologists and physicists is like the difference between compulsive obsessives and anxiety hysterics. (I do not imply that all biologists are obsessives and all physicists hysterics.) I am quite sure that there are relationships, of a nature still obscure to me, between the preocucpation with space, the type of symbolization that physics uses (which has spatial concomitants) and the choice of physics as a profession; but I suspect that in so far as space symbolizes distance from other persons (as Schilder says) it is more comforting than anxiety-arousing for these men, and I do not believe that their disinterest in persons is always compensatory. The psychologists and anthropologists are enormously productive on the research, quite unconcerned with rational controls for the most part, and intensely preoccupied with persons. Their handling of anxiety is quite varied; but as a group they are much the most freely aggressive, and this often has strong oral elements.

The level of intelligence of my group is extremely high, but there are interesting differences in patterning; the theoretical physicists surpass the others on both verbal and spatial tests; experimental physicists tend to be low on verbal and high on spatial; anthropologists are high on verbal and low on non-verbal; psychologists are high on both; biologists show all combinations, but generally the geneticists and biochemists are relatively higher on non-verbal and the others reverse this.

Differences in use of imagery during thinking are also fairly sharp. It is not easy to get a good report on this, and I am not happy about

> my data; yet they are remarkably consistent. In their conscious thinking, biologists are chiefly visualizers; among physicists the experimentalists rely most often on visual imagery, and the theorists on symbolization (usually mathematical and closely allied to verbal symbolization) or imageless thought. Psychologists and anthropologists rely predominantly on auditory verbal thinking. It occurred to me that it was possible that whatever process was most relied upon during the day would be the one to show up in hypnagogic revery. For those who are strongly visualizers or verbalizers, hypnagogic imagery is usually but not always in the same mode; for those whose dominant mode of conscious thought is symbolic or imageless it may be visual or auditory or symbolic, but usually with other twists to it. It would be interesting to find out if there are similar differences in the dream process.
>
> I should add that the one thing which characterizes every one of my groups of eminent scientists is the high degree of ego-involvement in the vocation, both now and earlier. That this is the major factor in their vocational success seems highly probable; but without a comparison group of less successful scientists I can't be certain about this. The ways in which this came about and the situations that made it possible are, of course, extremely varied. In some instances I can demonstrate quite direct relations between professional activities and specific emotional problems. In others I cannot; and I am not convinced that a genuinely neurotic problem is always involved. But I am convinced that it is the matter of personal involvement that is significant for problems of vocational choice and success.

I have included this long excerpt in spite of the fact that the researches of Dr. Roe in this area are still incomplete and inconclusive—as she herself points out—because even her tentative conclusions are unique, exciting and suggestive, and also because her work gives us an indication of how great an investment of time, effort, personnel, and money an adequate study of this problem would entail (8).

THE INFLUENCE OF UNCONSCIOUS SYMBOLIC PROCESSES ON THE PRODUCTION OF LOGICAL THOUGHT AND LOGICAL ERROR IN SCIENTIFIC RESEARCH

It is obvious that conscious emotions which are close to the surface can influence a man's scientific work, especially perhaps those anxious ambitions and pettier jealousies which are bred by certain special economic and professional insecurities which may induce a young scientist to push for quick and showy results. Of far greater importance, however, is the subtler influence of streams of unconscious feelings which may be represented symbolically yet compulsively in the scientific activity of an individual, just as they are represented in neurotic symptoms and in dreams, or in all artistic and literary creativity. At this point, therefore, I must explain what the concept of symbolic representation means in this connection.

The symbols by which we think are multivalent tools, always representing many things simultaneously, some conscious, some preconscious, and some unconscious. In logical thinking, the conscious and preconscious symbolic processes represent external reality without disguises; what we call "logic," therefore, is in essence a coding of relationships which are inherent among such internal and external data as are accessible to our direct perceptual processes. One might almost say that although logic resides in the mind, its roots are in the relations among external facts themselves. It is a neglected consequence of this principle, that it is literally impossible to be "illogical" about accessible data except when one has an unconscious axe to grind. Failures in logic are a measure of man's capacity to deceive himself with unconscious premeditation, by misperceiving observational data and by misusing conceptual data for his own unconscious purposes. Many years ago, William Alanson White warned that when any one says that two and two are five, he does so because he has to; and that way to meet this problem is not to teach him to say by rote that two and two are four, but to discover with him why he needs to believe otherwise.

It is an inevitable consequence of these facts that in spite of any degree of intellectual brilliance, individuals whose psychological development has been distorted by unsolved unconscious conflicts will have significant limitations in their capacity to build concepts out of the accessible data of external reality. This, indeed, is the greatest psychological hazard of the young intellectual—the fact that unconscious emotional forces persist in him in the form of unconscious needs and unconscious conflicts over these needs. In some, these forces will be expressed in obvious neurotic symptoms. In others, they cause subtle distortions of patterns of living. Sometimes they are expressed in distortions of artistic or intellectual (in this instance, scientific) activities. Naturally there are varied combinations of these three alternatives; but it is an impressive paradox that among individuals in whom unconscious problems are expressed in obvious neurotic symptoms their scientific work frequently escapes the distortions which occur in other scientists whose unconscious processes have no outlet through overt neurotic symptoms. This is not always the case; but it is frequently true that the masked influence of unconscious psychological forces can warp the thinking of a brilliant investigator even when he shows no overt neurotic quirks.

Let me give a few brief examples of the operation of unconscious conflicts on scientific work and scientific careers.

I have known scientists of great ability whose work nevertheless always tended to be vague and ambiguous. Some of these men unconsciously designed their laborious experiments so as to prove nothing. For unconscious reasons they could not allow themselves to find out the answers to their own scientific questions. Such an unconscious conflict over seeing and/or knowing with a preponderant unconscious need *not* to see and *not* to know, arises in early years. In adult life, it accounts for some tragic failures among scientists of brilliant capabilities. This conflict can also produce nihilistic critics who, however, brilliant may also be essentially destructive. For them it is as though seeing and knowing were transgressions which were endlessly tempting but always forbidden in the end. It is conceivable that adequate psychoanalytic therapy early in their training might have saved at least some of these gifted yet wasted and unhappy lives.

Experiments under hypnosis have demonstrated that unconscious processes can take over the intellectual equipment of a scientist and misuse that equipment for their own unrecognized purposes. Under post-hypnotic suggestion, for instance, highly skilled and experienced mathematicians have been led to attempt to prove theorems which they knew to be absurd or to solve mathematical problems which were known to be insoluble. This is the same type of process by which unconscious conflicts and purposes can lead a neurosurgeon to misapply his technical skills, or by which the subtle reasoning of a chemist or physicist, or the ingenuity of a clinical psychologist in devising or interpreting psychological tests, can be misapplied. Actually this is no more mysterious than is the way in which unconscious process regularly exploits the need for food or the conventional impulse towards cleanliness. One will find in the literature of psychoanalysis many studies of the effects of unconscious processes in disturbances of various normal activities such as eating, washing, dressing, painting, writing, sports, play, sleep, sex, and excretion; but to my knowledge there are no similar studies of the power of unconscious processes to disturb the equally symbolic methods of scientific research. Yet the surreptitious influence of these forces on scientific activities may determine the success or failure of an entire life (3).

That ancient tragedy of human nature, the success which brings no joy with it, occurs at least as frequently in the life of the scientific investigator as in art and business. A life of fruitful scientific exploration may end in a feeling of total defeat, precisely because in spite of scientific success the unconscious goals of the search have eluded the searcher. Sometimes at the end of a career this need to reach some still undefined goal has led a successful scientist to turn to a pseudo-scientific investigation of the supernatural. More often it leads to depression and a total arrest of all scientific productivity. Sometimes success breeds panic directly, as was observed in the case of a graduate student in physics, a man of outstanding ability, when the head of the department came up behind him in the laboratory one day, and said, "You handed in the best examination I have ever received." Thereupon the student laid down his apparatus and left the laboratory in a panic, which prevented his returning for several weeks.

When they operate below the level of conscious awareness and therefore are not subject to conscious control and direction, the early patterns of familiar loves and hates, of submission and rebellions, may exercise a profound influence on the later work of a scientific investigator, even to the extent of determining his choice of science as a career, his field of work in science, the problems he chooses, the causes he espouses, and the very experiments which he undertakes. While this fact has long been acknowledged, it has never been appreciated in sufficient detail.

There is, for instance, the force of unconscious imitation, to which all of us are liable, imitation even of those very traits against which we may have rebelled most vigorously in childhood. Manifestations of this, both gross and subtle, occur all around us and in every aspect of life. There is the child of the alcoholic who hated the parent's alcoholism yet becomes an alcoholic. There is the child of a parent with a tyrannical temper, firmly resolved never to raise his voice in anger against his children, yet who hears his father's voice issue from his own mouth, as he yells at his three-year-old son in an automatic imitation of the voice and manner which he had always hated in his own father. A famous professor of biochemistry in one of our leading medical schools was the son of a fundamentalist minister against whose narrow ranting he rebelled. Yet the son spent an entire afternoon ranting, as his father was wont to do, but this time it was against the gentle religiosity of a hapless salesman of scientific apparatus who visited his laboratory. This same professor used every biochemical controversy as a pulpit from which to expound sarcastic diatribes against his colleagues, quite like the paternal sermons which had offended him during his childhood.

Also in rebellion against a fundamentalist background, a famous professor of psychology showed a missionary zeal in defence of a mechanized concept of human behavior, so narrowly partisan, indeed so "fundamentalist," that in essence the concept destroyed the value of his whole theoretical approach, which could otherwise have been of considerable scientific significance. Again, there was an eminent physiologist whose desiccated approach to certain problems bore the destructive imprint of an early conflict over whether or not to join the priesthood.

Such thought-provoking reactions are not rare. Many more examples could be cited, but they would merely serve to illustrate again the fact that the human beings who do research work are the subtle and complex instruments of their unconscious and conscious processes; and that the very content of a scientist's investigations as well as his vulnerability to the emotional stresses of research will reflect in varying manner the influence of those psychological forces which are unconscious residues from the unresolved neurotic problems of his early childhood. This fact indicates that an essential element is left out of the training of Man the Scientist, namely, an opportunity to free himself from bondage to the unconscious residues of his own childhood.

Research is a strange and challenging occupation for any young man to contemplate. We still know far too little about the unconscious components of the forces which lead a man or woman to go into research or about the influence of the unconscious elements in determining the success or failure of his efforts. All of these problems, with their general as well as their special human significance, should be explored. How to do this is a matter for special considertion since it presents many difficulties. Perhaps the first step would be to subject to psychoanalytic exploration, and in selected instances to psychoanalytic therapy a random sampling of: (1) promising young men who hope to make scientific research their life work; (2) men who have already devoted many years to research, including (*a*) men who in spite of high native endowments have been unproductive, (*b*) others who have been creative but who have ended up nonetheless in frustration and despair, and (*c*) finally those who have succeeded and who have enjoyed fully the fruits of their achievements.

Just as psychiatry has had to study elations in order to understand depressions, so in such a study it would be important to keep in mind that it is just as important to study successes as failures. In science as in other fields, success or failure cannot be accounted for by diffrences in intellectual capacity alone. Consequently, an analytical study of those who succeed and of those who fail and of the many graduations between success and failure would be of value not only to science but also to those foundations and universities that wish to use men wisely to advance the frontiers of human knowledge.

To uncover in this way some of the unconscious factors which determine the choice of a career, and to explore the subtler forces which determine whether or not what career will be externally productive and internally fulfilling, would be a major contribution to human wisdom. To the best of my knowledge no such study has ever been made of any occupational or professional group. A start must be made somewhere, and in view of the paramount importance of science in today's world, it might be appropriate to start with scientists. Such an enterprise would merit the support of scientific foundations. The sums which are spent on research are so huge that it would seem to be common sense, business sense, and scientific sense to study the men who expend these investments.

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A. ZALEZNIK,
C. R. CHRISTENSEN AND
F. J. ROETHLISBERGER

Motivation and Management*

THE CONDITIONS UNDER WHICH THE CONVENTIONAL REWARDS OF MANAGEMENT MOTIVATE

LET US grant that under most conditions money or pay is important and that under conditions of no employment or partial employment, when the worker does not have any or very little, for instance, it is pre-eminent in importance. The oft repeated phrase of the workers whom we interviewed to the effect that "a job is a week's pay" testified to this kind of importance. To them the job and the pay they received from doing it were first of all the means for satisfying their subsistence needs.

There is also very little questison that by providing or withholding the means for satisfying these basic subsistence needs, such as by having, keeping, or losing a job, management can control the behavior of workers. Such rewards and punishments are powerful motivators of human behaviour, and through them management's minimum productivity expectations—all other things being equal—can and probably will be met. In the department we studied, for example, the production norms were well within the range of management's expectations.

These are not the issues our research findings raise. What we and other researchers have found is that in spite of these powerful motiva-

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tors of behaviour (or perhaps because of them, as we shall examine later), there still remain in many work groups in modern industry what appear to be "apathetic" workers lacking in "ambition", disliking "responsibility" and resisting change, i.e., workers whose energies are directed very little, if at all, to the economic objectives of the company, even though their subsistence needs are being satisfied. These findings do not differ too much from what many managements perceive their workers' behaviour to be. Only when one tries to explain or interpret them do differences appear.

To one school of thought, these perceptions reinforce only too well what they already know—that man is, and that workers in particular are, by inherent nature indolent, lazy, apathetic, passive, and ambitionless, and that hence it is management's task to get things done through such given human material. According to this school of thought, it follows that such human material can only be made tractable either by carrots or by sticks (i.e., rewards and punishments addressed directly to the satisfaction of subsistence needs) or by more "soft" approaches that make it more willing to accept direction and to do what it is told (i.e., rewards that are often expressed by the workers as "being treated fairly and like human beings").

Let us note that these two approaches differ only in the means by which the worker can be made more tractable and can be made to accept direction. One says that this can best be done, particularly under conditions of unemployment, by being "tough"; the other says that it can best be done, particularly under conditions of full employment, by being "soft". Still others say, "by being both hard and soft" or "firm but fair". All agree, however, that there is nothing intrinsic to the worker's motivation which makes him want to belong to the organization for which he works, to be concerned in the slightest with its goals and objectives, or to do any more than the minimum that is expected of him in order to keep his job. Between his own personal goals and the goals of the organization there is no relation except that which management provides. Whether implemented means "hard" or "soft" or "firm but fair", this is the task of management: to provide some motivation externally for an internal motivation that isn't there. If there is nothing in the worker's nature which makes him want to direct himself toward organizational goals, it follows that he has to be pushed, directed, or led there firmly, kindly but fairly. This is management's job.

Before dismissing this school of thought too lightly, let us look at some things that can be said for it. In looking at large-scale organisations—and we need not confine our attention only to the bottom level—it is only too true that we do not find many people eager to lead and direct themselves and to assume responsibility. These needs are for the most part so dormant that to management's naked eye they scarcely seem to be there at all. Although psychologists put them high up on the list of man's wants, supervisors and executives in their day-to-day interactions with their subordinate supervisors and workers find them hard to discover. It is not strange, then, that when these higher needs of man are called to their attention, they are likely to be sceptical.

But equally difficult for them to accept is the statement that these conventional methods of harnessing the energies of workers to organizational objectives do not work so well. Have not these methods achieved for American workers the highest standard of living yet known and now existing on the face of this globe? Does not the production of physical goods and services increase each year? Are not the productivity records of America and the means by which they are achieved the envy of the industrially developed and underdeveloped world? According to this school of thought, these conventional rewards work only too well.

Moreover the argument—yes, they work but, like most things that work, they work under certain conditions and at a certain cost (i.e., that even in matters of human affairs the principle of "you can't get something for nothing" operates) and the cost for this stupendous achievement is the creation of unimagined quantities of frozen human energy—seems unconvincing. It is unconvincing particularly to the person who believes that this frozen condition is an inherent part of man's nature in the first place.

But let us not indulge in these sorts of paradoxes. Let us admit that under certain conditions these conventional rewards work and let us try to specify some of them. They work:

1. When employment (having jobs) and continuous employment (keeping jobs) are perceived by the workers as the major and exclusive rewards they can receive from doing their jobs.
2. When the workers' struggles to satisfy their subsistence needs are so paramount that their needs for membership, status, and self-development remain fairly dormant.
3. When the principal transactions between management and workers are perceived and can be expressed by some such rough equations as follows, i.e., when
   Reward = satisfying subsistence needs = employment = having or keeping a job = doing the minimum management accepts, and when
   not doing the minimum that management accepts = losing or not having a job = nonemployment = not satisfying subsis-

tence needs = punishment.

4. When in these major transactions between management and workers, the "hidden costs" cannot be accurately measured but some rough, crude, "fair", and "just" balance can be struck.
5. When management with the help of experts can redesign the workers' jobs so that it can justify increasing its minimum output expectations without violating too seriously the workers' sentiments of "fair treatment."
6. When workers have grown so accustomed to being directed and led that it has become, except for occasional eruptions, a part of their second (conditioned) if not inherent nature.
7. When there exists some socially sanctioned machinery to take care of these eruptions.
8. When the industrial culture sanctions the belief that workers should satisfy their subsistence needs on the job and their needs for membership, status, and growth away from work.

The Conditions under which the Conventional Rewards of Management Do Not Motivate

To another school of thought it is the very success of these rewards under these conditions that make them so singularly unsuccessful under other conditions and it is this fact that accounts for the main findings of our study.

To this school of thought, for example, the great success of modern industrial management in achieving for workers the highest standard of living yet known means that that struggle to satisfy these subsistence needs for the greater portion of the work population has been won. America has the best housed, the best clothed, and the best fed workers in this wide world. For large numbers, subsistence needs are now being satisfied. And it is this very fact that changes basically the motivational picture in industrial organizations.

To demonstrate how this has come about, this school of thought points to a property of a "satisfied need" that holds, peculiarly so for that class of needs we have called "subsistence," namely, that once satisfied they no longer motivate. This property has been observed by some insightful practitioners as well as by some insightful psychologists. As they well know, air, water, food, clothing, shelter, and sex, for example, are most important to those who have not got them. Or as some have stated more eloquently, "Man lives by bread alone when he has no bread." Or as some psychologists put it, once man's basic needs have been satisfactorily met, he goes on to satisfy his other needs—his social needs for belonging, his ego needs for status, and his growth needs for self-fulfillment.

MAN'S HIERARCHY OF NEEDS

As Douglas McGregor says, "Man is a wanting animal". He wants more and more but this does not mean he wants more and more of the same things. Once his basic needs for food, clothing, and shelter are satisfied, he wants friends and to get folksy and groupy. Once these needs for belonging are satisfied, he wants recognition and respect from his fellowmen and he wants to achieve independence and competence for himself. And once these needs for status and self-esteem are satisfied, he seeks for self-fulfillment, for freedom, and for higher and higher modes of adjustment and adaptation.

Let us stop for a moment to examine this hierarchy of man's needs because it has interesting properties which we shall want to refer to often in examining the behavior of people in organizations-executives as well as workers.* The first two properties have already been stated, but because they are so important and the second property needs a bit of sprucing up any way, we shall repeat them:

1. Not until the lower order needs are satisfied will the next higher order needs become greatly activated.
2. Once man has satisfied his first two orders of needs—subsistence and social—they cease to be powerful motivators of his behavior. Once he has broken through this level, this property no longer applies. Once his needs for status, knowledge, and self-fulfillment have become activated, he becomes greedy. He cannot satisfy them enough and thus they remain never completely satisfied. He seeks at great cost, even sometimes at the cost of subsistence and social needs, for more and more satisfaction of these needs for status, self-esteem, and self-fulfillment. But this hunger for these things does not appear until his subsistence and social needs are all reasonably satisfied.
3. But in fulfilling his wants at each level, the struggle goes on; there is a cost attached, i.e., the principle that "you can't get something for nothing" still operates. Each reward has its corresponding cost, and the higher the reward the greater the cost, as well as

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*In stating this hierarchy of man's needs, we are taking some liberties with Maslow's nomenclature and classification scheme. We are putting into the one category of "subsistence needs," two categories of needs which he treats separately and arranges hierarchically: (1) physiological needs and (2) safety needs. We are doing this for purposes of simplification of exposition in this chapter: we do not recommend this fusion for purposes of investigation.

the higher the cost the greater the reward is believed to be.

a. As everyone knows, man satisfies his subsistence needs by the sweat of his brow, but also

b. The cost of belonging and having friends is conformity, and every regular member or social leader knows how he has to sweat to pay it.

c. The cost that man pays for recognition and respect from his fellowmen is not only conformity but responsibility to boot, and how irksome that is every businessman recognizes.

d. The cost that man pays for his independence and for maintaining his own self-esteem is often nonconformity and social isolation, and as every "organization man" knows, the cost comes high and many are unwilling to pay it.

e. But not until man seeks for his freedom and self-fulfilment does the struggle get really rough and the stakes get high. The cost of finding himself is having to renounce one by one all the wants he has for so many years so zealously cultivated. In so far as his lower order needs permit, he has to give up concentrating upon his quest for food, comfort, friends, belonging, status, power, independence, and self-mastery. In the long run they are all self-defeating. Only one fruitful direction is left: of trying to create "order out of chaos, knowledge out of ignorance, insight out of illusion, and freedom out of compulsion." And as everyone acquainted with the second law of thermodynamics knows, this is a continuously uphill job that will never get completely or finally accomplished.

4. Thus in this struggle of fulfilling their increasingly complicating wants, many men fall by the wayside. Either (1) they are unwilling to pay the costs required for the satisfaction of their higher wants or (2) their situations offer little or no opportunity for their satisfaction. Every man wants to grow but he may not be willing to pay the price or, although willing, may not have the opportunity to do it. As a result, many of man's higher wants remain dormant or thwarted.

5. But thwarted needs do not remain still. They continue to flourish at the level at which the upward development stops or at levels lower to it. This lower level elaboration, however, should not be confused with growth; it is symptomatic of the frozen state: an endless elaboration at one level of certain need satisfactions such as, for example, the endless pursuit of groups and friends for the emotional support they provide or the endless pursuit of more and more status symbols and the needs for recognition they satisfy.

MANAGEMENT'S OBSOLESCENT MOTIVATIONAL TOOLS

Now that we have erected this theoretical scaffolding, what does it mean for management in its relation to workers ? Let us start again with the basic subsistence needs which play such an important role in the worker's relation to management. Through steady employment and good pay, management can satisfy these needs of workers. But as we have seen, once satisfied, they become less important and the higher needs become more and more important. But as these higher needs become more important they cannot be satisfied by management in quite the same direct way that the lower needs are satisfied. And so from these peculiar properties, certain important consequences follow for management.

Because management has been so successful in satisfying its workers' subsistence needs, and because workers whose subsistence needs are satisfied are no longer motivated to satisfy these needs, management can no longer use its traditional rewards to motivate them. No amount of good wages, fringe benefits, and good working conditions in and by themselves will motivate workers to give more than minimum effort. Thus management seems to be left with obsolescent motivational tools on its hands that have not been "written off" for new ones.

But this obsolescence goes still deeper. Not only are the needs to which these tools were addressed no longer, so to speak, there, but also the old tools are no longer relevant to the new needs which have now emerged and through the satisfaction of which workers can now again be motivated. Although management can provide workers with jobs (rewards) that satisfy their subsistence needs, it cannot provide workers as directly with those rewards which allow them to satisfy their higher needs. It cannot provide workers, as directly as it hands out jobs, for example, with friends, with the respect of their fellows, with self-respect, with independence, or with the satisfaction of their needs for self-development and fulfillment. Although it can provide the conditions which would allow these needs to be satisfied in relation to the goals of the organization, it cannot push them, direct them, or lead them in this direction kindly but firmly.

To make the situation even more serious, management cannot provide these conditions easily. The very way that work is traditionally organized tends to make for more and more simplified and limited jobs, requiring less and less skill and responsibility, utilizing less and less of the worker's capacities, and eliminating more and more meaning from his work. It thus becomes more and more difficult to satisfy these new needs under these conditions.

Thus management finds itself in a tough situation. By satisfying its workers' subsistence needs it has lost its conventional controls for motivating them. It has released new wants which its old motivational tools cannot satisfy. Moreover, it has unwittingly organized its work in ways which do not provide the conditions that will allow these new needs to be satisfied. As a result, many of the workers' new needs for membership, status, and growth become thwarted and so-called human relations experts are hired to deal with these thwarted needs which management has unwittingly produced in the first place.

According to this theory, then, the conditions under which the traditional rewards of management no longer motivate are:

1. When the workers' subsistence needs are no longer paramount and when their needs for membership, status, and self-development become activated.
2. When workers start trying to satisfy these needs on the job.
3. When the way of work is traditionally organized allows little or no opportunity for the satisfaction of these new needs and thus they become thwarted.

In conclusion it should be noted that this theory not only accounts for why the traditional rewards no longer motivate. It also accounts for the frozen state that management has got its workers and itself into. Given its traditional conception of its task and given the motivational situation to be as we have described it, the frozen state must be a consequence.

PART TWO

Understanding Individual Behaviour

Ashok Rajguru

Frederick Winslow Taylor

Kannan

CASES

Ashok Rajguru*

IN OCTOBER 1962, Donald French, a graduate student in clinical psychology at the University of Chicago, interviewed his friend, Ashok Rajguru, a doctoral candidate in theoretical physics at Northwestern University.

Ashok Rajguru had lived in Calcutta, India, until 1960, when he had received a fellowship to continue his studies in physics at Northwestern. By the fall of 1962 Ashok had completed all the requirements for the Ph. D., except for a thesis in which he hoped to make an original contribution to quantum electrodynamics. He had not been home since first coming to this country.

Donald and Ashok had first met in June 1962 as the only summer employees at an electronics company in California. They had decided to room together, and during the summer developed an affable relationship without ever becoming close friends. They had frequently talked about such topics as politics, literature and economics, but had found that their social and recreational interests were quite different.

The interview was arranged by telephone one day in advance. Donald told Ashok that he wanted to practice understanding another person's point of view. Donald explained that this was part of a course

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*This case, Ashok Rajguru, HP 584, was prepared by Professor Arthur N. Turner of the Harvard University Graduate School of Business Administration, based on a student report, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1964 by the President and Fellows of Harvard College. Used by specific permission.

at the university of Chicago, and that he would be graded on his ability to understand how someone else felt about things. Ashok readily agreed to help, without any apparent concern over whether his identity or the interview would be kept confidential.

On the day of the interview Donald drove out to Evanston, had lunch with Ashok, and brought him back to Chicago. After a one-hour tour of the campus, and some conversation about life at Chicago, Donald invited Ashok over to Donald's room for thei nterview. No one else was present. Donald set up a borrowed tape recorder in the middle of the room, explaining that he wanted to listen to the discussion again so as to improve his understanding and technique. The recorder did not appear to bother Ashok, and Donald felt that the general atmosphere was one of relaxation and mutual confidence.

Donald 1 : Well, as I explained before, the object is not to talk about something that interests me, but rather to talk about something that is on your mind currently.

Ashok 1: I guess I have to start somewhere !

D2: Well, what have you been thinking about lately ? Is there anything particularly bothering you ? (Long pause) It doesn't have to be anything very profound. Just the kinds of things you have been thinking about; how the world is impressing you.

A2: Well the trouble is that everything I think about nowadays is connected either with physics or politics. (Pause) But I don't really want to talk about that.

D3: You feel you don't want to talk about physics or politics ?

A3: Well there's really no reason I shouldn't want to talk about physics, but I don't know whether that would be something of interest to you. I don't mean something technical in physics, I mean things like what you can or cannot do in physics, how far you can go, whether it is really worthwhile to be interested in this one thing to the extent that you have to forget every thing else, and whether it is really worth it.

D4: Are you having some doubts about your real future in physics ?

A4: Yeh ! I really don't know if it is worth being—it's quite clear that if you want to do something really worthwhile and creative, not merely in physics but in any field, then you have to think only of the field to the exclusion of everything else. And this somehow seems to me to be too great a price to pay.

D5: You feel like it would be too confining.

A5: Yes. There are just too many things in this world which one should bother about, which are interesting, to which one should pay some attention, that it isn't worthwhile to exclude everything for just one thing. I have very serious doubts as to whether it is worth it. And yet, these doubts are compounded with other doubts—such thoughts probably arise because I have done nothing significantly creative and such doubts would probably no longer be there if I were to prove myself capable in any significant way.

D6: Uh huh.

A6: So it's probably more basically a question of my capabilities in the field.

D7: Your are wondering about your ability to do something significant ?

A7: Yes, significant !

D8: And you feel like you want to do something significant.

A8: Yes. And yet it seems that, given the capabilities that I seem to have, and to do anything significant I would have to put in much too much effort—to the exclusion of everything else.

D9: You don't feel it's possible to make contributions in physics without dedicating most of your time to it.

A9: Yes, I think its pretty impossible. You cannot do anything significant with a peripheral attachment. I think I'm pretty much convinced of it. And I (pause)

D10: Somehow you are hanging back.

A10: That's right. And it's very serious because I'm at a stage where hanging back can be absolutely fatal and I have more or less—one decides on a career long before one goes into a Ph. D. program—that is, when one decides to go into graduate school—and at this late stage of graduate school, to have such doubts when I should be putting in all the effort that I can—this can be pretty fatal. So, it's very disturbing. I don't work as much as I should. When I do work I have my mind half on other things. Not necessarily personal things, but things that it seems very important and relevant that I should know, things like economics and politics and modern novels. (Pause)

D11: These things seem to be diverting your attention away from physics.

A11: Right !

D12: And you feel sort of guilty about that ?

A12: I feel very guilty about that—I mean—I go into the library and read all sorts of other things and I feel very guilty about it afterwards. And this is creating a hell of a problem for me. I just don't know what I'm going to do about it. And it's all the more painful because after all I've come here from another country with a specific purpose. I gave up a set of privileges which were open to me at home, I borrowed money, I came over, and made a very definite commitment.

D13: Ah yes, I see.

A13: A very definite commitment. If I were at home at this stage I would be much freer to choose what I wanted to do. I could conceivably give this up and go into something else, but now I've more or less burned my boats—I mean my bridges—and its very disturbing.

D14: So the thing has some family implications as well as professional?

A14: Yes, that has some significance. I mean part of the force which compels me to keep doing what I am is the notion that if I should at any time make a very drastic change in my career—at this stage—I would be disappointing a lot of people in the family. Not because they are very bent on seeing me as a physicist but because they won't be very happy about the waste of time.

D15: You feel like they contributed something to your being able to come here and that you would sort of be letting them down to cast it aside.

A15: Ah yes, but in a somewhat different sense. That is to say, they have contributed to my coming here only to the extent that they were willing to make certain emotional sacrifices. For instance, it is very conventional in an Indian family that if the father should die the mother should stay with one of the sons. It is just taken for granted, there is no question about it. And when I came away here it was pretty clear that I was shirking that part of my responsibility. Clearly my mother couldn't stay with me if such circumstances should arise. And my being willing to take this advantage and my mother being willing to let me off—she couldn't actually hold me in any sense, I mean I was grown up—but her willingness to let me come reflected on her part a willingness to let me do whatever I should want to do. And if having taken this opportunity to do what I want to do, I then at a late stage decide, no—it's all a waste of time and I really didn't want to do this or I'm changing my mind, it's being capricious in a fashion which is asking too much of the other people who have made sacrifices in allowing me to do what I should want to do.

D16: So in a way, as I see it, you feel you are sort of temporarily shirking some of your responsibilities; and that this will be all right if you are able to do something successful with the time you have taken.

A16: Right! And it would not be so good if I should have nothing to show for all this time. And I really have nothing to show but that's probably not too relevant because at this stage probably not too many people do. But quite apart from that, in going to courses and learning what I have to learn, I have by no means devoted as much attention and got as much out of being here as I could have if I were very sincere and serious. And this seems to be such a vast waste of my capabilities, of my time, of the fellowship I'm drawing on, it's a waste of everything. (Pause) And I feel very guilty about it. Not merely guilty about not using my capabilities but guilty about defrauding others who are making sacrifices. Someone is giving me a fellowship so that I don't have to teach and I should, therefore, study all the time.

D17: You feel that may be someone else should have been given this opportunity who would hurl himself into it ?

A17: Yes, some one who would get much more out of it. (Pause) It's very bad. (Pause) It gives you very serious feelings of guilt. It's not that I haven't worked at all. That's not it. But if I look back at the kind of work I used to do at home—by the kind of work I mean the amount of time I would have put into serious work—it's clear that in my two years here I could have done much much more. That is beyond question.

D18: I see. So you really feel like there are a lot of capabilities there that you are not measuring up to ?

A18: Yes. A lot of—ah—not merely capabilities but a lot of just sheer hard work. I mean you can't do any creative work without a lot of hard work. I'm just sort of learning this and that in a peripheral way. (Pause) This is a very big question. I feel that I've come over here at this very important period in my life and it's just being wasted. This is extremety undesirable. Now that I am here I don't know what I can do about it, apart of course from telling myself that I have to work hard—and this and that. But you can tell yourself and yet, if certain things don't work out, what can you do ? Something has to be done about it.

D19: So you are fairly certain at this point that you are going to see this thing through ?

A19: Yes, if for nothing else but the fact that I am sort of trapped physically. And being trapped physically I have to make the best of it. I mean I'm certainly not at that stage of despair where people sort of throw everything to the winds. Neither am I at that state of despair nor can I give myself up to such a state. That would be accepting defeat and I'm not willing to. But what makes me sad is that I'm making the best of a bad bargain whereas this could have been such a good bargain. (Pause) I think back as to what my picture of myself here was when I was at home—you know—you project yourself forward and you think about what you'll be doing when you get there—and (Pause)

D20: It hasn't measured up to your expectations.

A20: No, it hasn't measured up at all. I compare my projections with the realities of the past two years and there is so much lacking—much too much lacking.

D21: I gather from what you were saying before that you might leave if you were not constrained by all sorts of forces like being here, your scholarship, etc.

A21: Yeh ! I think if I were in a similar situation at home I very possibly would leave the university for a number of years. Having a Master's I could just go and teach for a while forgetting about a Ph. D. I very possibly would have done that. And then at the end of two or three years I possibly would have realized that my interest in the subject wasn't totally dead, rather that it wes a combination of circumstances which had covered it up somehow. (Pause) And another thing which keeps bothering me is the lack of motivation. You know—when you are at school—people by and large have a desire to excel. They are in a group and they naturally want to stand out in the class, and this function with mei s just as normal as anything else. I used to pay a lot of attention to it but (Pause).

D22: You used to be motivated but you are not now.

A22: Now when I go to a class and have to take an exam—it just does not bother me if I am fourth in a class of seven. Whereas previously I remember—of course there were different circumstances—that if the difference between me and the second boy in the class was even close it would keep me awake at night. And now this just doesn't bother me at all. Of course at this stage it is silly to even think in those terms. But even so, that's an important element in motivation. People around you are working or getting ahead—and learning a lot—and you want to know as much as they do. If possible you want to know a little more. Basically, very simply, that's just ego. But nowadays that just doesn't work. I've given that up totally. Here is someone working very hard, I just say he is working hard but I'm not. So what ? (Laughs)

D23: You don't feel any competitive motivation.

A23: Right ! That has vanished absolutely. It was there very strongly till the last days when I took my Master's exam. (In India) It meant so much to me that I could come first in my Master's exam. It was one of the strongest boosts I've ever had in my life. I worked like mad for six months. I was sick, very seriously, but that didn't matter.

D24: And you were successful.

A24: Oh, yes ! All through my school and college career there has only been one exam in which another boy beat me. This was always one of the strongest elements in my motivation. I couldn't possibly sit in a class in which other people were doing better than I; any better at all. This idea was very repugnant to me. And yet I come here and give that up totally ! And yet it's quite clear to me that with a moderate amount of hard work I can definitely be as good as the students I'm with now, if not a little better. It's not that there is a huge gap between them and me, I don't feel that at all.

D25: So by asserting yourself in the past, you could excel; and you still could, but for some reason you just aren't doing it.

A25: Right. There was one course in which I did somehow assert myself. It became important for me to do well and I did. There were 13 or 14 people in the class and I got either the highest or second highest mark. I don't know for what reason I did this, I think it was perhaps that I valued that one professor very much.

D26: So you still can excel if it matters.

A26: Right; if it matters. And somehow it has ceased to matter.

D27: Somehow, beating the other guys doesn't matter any more.

A27: It doesn't matter. And having lost this motivation I seem to have lost all motivation.

D28: I see.

A28: Previously it was not only that I should have to beat the other guys; in the process it was also very important that I should know just for the sake of knowing. One of the strongest elements in motivation was that I should excel, but apart from that there were other relatively minor ones—that I should know since there were so many things to be known—I couldn't be ignorant. But now having lost the motivation to excel I seem to have lost the other ones too. It no longer is very important to me that I don't know all the details of quantum electrodynamics.

D29: Knowing for the sake of knowing has gone too.

A29: It has gone too. And this, more than the motivation to excel, is what bothers me. This is much more important and this is what bothers me. I open a book in physics and read five pages and find it tough going so I just leave it.

D30: You feel that loss of the desire to know for the sake of knowing is a more serious loss.

A30: Oh I think so. I have no illusions as to the extent of my capabilities in physics. I realized long ago that I'm not going to be one of the very top. But to be even a moderately competent physicist you have to know. If you are very good then you make very good use of what you know, but even if you are going to be a moderately competent physicist you have got to know. You have to have the desire to know. And if you don't have that then you might as well go and be a clerk. I mean some place where you just do routine work; where there is no question of knowing, no question of finding out, no inquiry, no interest in what you are working at.

D31: There is a kind of feeling of despair at not being readily able to be the best physicist in the country.

A31 :Yeh ! It is very difficult to know which came first; the realization that I was not going to be a Heisenberg or the realization that I just wasn't as interested in these things as I used to be. I think the other one came first, that is, I realized earlier what my limitations as a physicist were. That is, I realized what was the highest class to which I could aspire. And since then it has been—it's very difficult to say what the reasons could be.

D32: You sort of gave your all in competing with the others and went as far as you could go; as far as you felt your capabilities could carry you.

A32: Well, yes and no. (Reluctantly) I took my capabilities as far as they could go in exams and competing with the others, but I realize that I could take them much further in terms of being a physicist rather than in terms of excelling in exams. And it is this part which I'm not fulfilling. I have fulfilled my part in terms of taking exams and that kind of thing. I'm not fulfilling what I realize are my capabilities in being a physicist. That is, in doing some good original work.

D33: I see. You feel like you did your part as a student but now you are sort of falling down in applying it to the profession.

A33: Right. I did my part very well as a student but I'm doing practically nothing to make myself into a competent physicist, beyond what is required of me as a student.

D34: So you are finding the conversion from student to physicist a painful and difficult one.

A34: Yes, and yet these things merge so much into one another that I don't know whether I would put it in those terms. Because you continue being a student pretty late, even after your doctorate. When you are a young post doctoral fellow you are still really a student. Young post doctorals even have their offices with the graduate students. (Laughs) So this business of growing from a student to a physicist is a slow and gradual process. It isn't as though there was an abrupt jump that I'm having trouble adjusting to. It's a very slow and gradual process in which a person normally should have no difficulty because he really doesn't realize himself when he has ceased to be a student and when he has become a physicist.

D35: Uh huh.

A35: And I'm still conscious of the fact that I am a student. That is I'm still in the process where I have more learning and less original work to do, at least for a limited period, rather than less learning and more sheer work to do. I've a lot of learning yet to do. (Pause)

D36: So you are not sure that it is the conversion from student to physicist which is bothering you.

A36: No, I think that it is something even more fundamental. It has to do with things like this. You have only one life to live. What is important and relevant in that life ?

D37: It's more a hesitancy to commit yourself entirely to physics.

A37: Right. (Pause) It probably isn't that important that I should do something creative in physics. Somehow that shouldn't be and an essential ingredient in my making myself happy. It is much more important that I should be happy in quite a variety of other things. Physics just isn't as important as it used to be.

D38: So you feel like there is a wider spectrum of interests that is becoming important to you.

A38: Yes. There was a time for example when I used to think that it didn't matter at all if in the process of coming over here—in the process of pursuing physics—the family should be hurt. There was a time when I used to think that was perfectly all right if I went ahead. Those drags from the family should not be a factor at all. But I have ceased to think in those terms! I have come to the state where I think that human relations are much more important than I used to think even two years ago.

D39: Uh huh.

A39: And I think basically that it is this lack of fulfillment in human relations that is at the root of all this hesitancy. If I could find satisfaction in human relations, which are more important to me than they were two years ago, then that might revive my interest in things.

D40: I see.

A40: I mean that this is my estimate of what the situation is. I have no real idea as to whether this is correct. And that is why I have the feeling that if I were at home, just because I'm so close to the family and all that, I wouldn't have felt this lack in human relations which I do feel.

D41: I see.

A41: And that is what at home partly contributed to my serious interest in the subject. I didn't realize at that stage how much these things (human relationships) meant to me. I took them for granted because they were there and, therefore, I could be totally immersed in physics. Now I feel their lack. I realize how important they were to me and since I can't now find fulfillment I lack interest in other things too.

D42: I see. You feel that at home you had satisfying family and friend relationships and that this whet your appetite for life, for physics, for everything.

A42: Right. Right. Exactly. It was important to me that I should learn not merely because I had to learn but because I could talk about it to my friends, because they would be interested in what I was learning, and it would raise me in their esteem. This is all a feedback process and the feedback circuit is now absent. (Laughs) Essentially, I have to work now in a personal vacuum and with the absence of the feedback it seems impossible to work up the interest that I need to. I realize more and more how important that (supportive feedback and satisfying human relationships) was, and that is why basically I have this feeling of despair because I don't see how

I can radically alter the situation, given the circumstances that I have here. I have to make the best of what I have here. But it seems to me that the best I can make of the circumstances here may not turn out to be good enough. And that is where my basic hesitancy and fear arise.

D43: So flinging yourself into physics would not permit you to satisfy this need for rich human relationships.

A43: Rather, put it the other way around. The absence of rich human relationships makes it impossible for me to fling myself!

D44: Ah! Now I understand.

A44: And I don't see how I can correct the situation with regard to human relationships so radically here.

D45: Particularly here as opposed to home.

A45: Yes. And this inability to correct human relationships won't permit me to devote the amount of attention to physics that I would want to.

D46: Because here there are some barriers to satisfying human relationships.

A46: Yes. The strongest of the barriers is the absence of family ties. I mean ordinarily you anchor yourself to your home and then move out. And now I don't have the anchor so I don't move out and it all ends in a vacuum. I live by myself, etc. Of course I have casual friends, fellows in the department but they are not of sufficient depth to assure me of happy human relationships.

D47: So the lack of the strong secure family ties in this country, here and now, is hurting your application to your work.

A47: Yes, that is what I think. Of course, I could be very wrong. But that is what my analysis of the situation is. And if it is correct, then it seems to me to be pretty hopeless. That is why I have been thinking of a course of action which seems to me to be the best I could do. That is, there is one language exam I have to take and there is one advanced exam one has to take while working on the thesis in the specific field in which you are working; so I've been thinking of finishing the advanced exam, finishing the language exam I have to take, and then getting permission from here to go back home. I wouldn't have the direct contact with the professors here but I have enough confidence in myself that given some application, the aid of the professors at home, and some correspondence with the professors here I could turn out a thesis that they would accept here. So I've sort of been toying with that idea for a while. I would finish the requirements here and then go home. I would be left with an unfinished oral exam at the end of the thesis, but that could be worked out somehow. I don't feel like submitting myself to this void long enough so that whatever lingering interest I have in the subject would die down. It might die down to the extent that you just can't rekindle it. I don't want that to happen and I have to do something before that.

D48: You are afraid that you might destroy your interest in physics permanently.

A48: Yes permanently, because of this peculiar set of circumstances.

D49: And you think that would be a bad thing to have happen.

A49: Yes that would be very bad because so much of my respect for myself is related to my capabilities in physics. If I should just throw in the sponge, that would very seriously hurt my esteem of myself. I couldn't do it ! Well, probably if I were forced I would do it, but I wouldn't want to do it. It would be too much of a personal psychological disaster. I wouldn't want to do that at all. Of course, I've been toying with that idea. (Pause) Hopefully, if I could somehow get going, but I don't see how I could do it, then I wouldn't have to take recourse to such a drastic step. But, if I were forced to, then I certainly would. Because I would be much more willing to take the step than to allow my interest in physics to die down totally.

D50: Uh huh. Then you don't want to let your interest in physics wane because this would damage your self-respect and that would have a detrimental effect on your whole life.

A50: Yes, a very detrimental effect. There was a stage when I used to think that creativity was the only thing a man could live for. I have given up such a drastic view of things. I used to think that nothing else mattered. I have given up such a drastic view, but I still do place a pretty large premium on creativity. If my life were to be lived without any element of creativity I don't think that I could make it a worthwhile life. I wouldn't have enough respect for that kind of life.

D51: So your feeling about yourself is that it is still very important to you to create.

A51: Very important.

D52: And yet there are other things which are important too, in particular, worthwhile human relationships.

A52: Right. And I'm realizing how much the presence or absence of these relationships interacts with creativity.

D53: You can't separate them.

A53: You can't separate one from the other. This is something which I never realized before coming to this country just because my need for human relationships was satisfied. And I'm beginning to see how closely they are interrelated. You can't have one without the other. You could probably have satisfying human relatonships without creativity but not the other way around, at least not for me. I've known physicists who don't care if their wives divorce them, and it happens once in a while, but I don't think that I could be that way.

D54: So you feel a need for a kind of total existence.

A54: Right!

D55: One that is rewarding on all fronts and you can't sacrifice one for excellence in the other.

A55: And the worst part of the present situation is that the absence of one leads to the absence of the other, so that I'm in a state of total absence. (Laughs) And yet I feel trapped. The way of doing away with this situation seems as though it should be so simple. One should have satisfying relationships, this should allow one to work, and it all should be so simple. And yet I'm in physical circumstances such that I can't put this to the test;I can't make it work.

D56: Uh huh. So you feel that even though you have some insight into the problem, the circumstances won't let you do anything about it.

A56: That is right. (Pause) So the problem has now resolved itself to the point that, given the fact that the circumstances won't allow me to get the best solution, I'm wondering what is the next best thing that I can do. I should be man enough to acknowledge the fact that I have to put up with something which is not the ideal solution and make the best of it. But that takes quite a while. It is a very difficult thing to do.

D57: It isn't a fully satisfying way out.

A57: No. And this period in one's life could be so productive, it could be so satisfying. Here I am on the verge of doing creative work, at the end of the learning process, maturing from a student and adolescent into a man, and this could be such a satisfying and full period in one's life and yet I'm living in a total vacuum. This is very unsatisfying.

D58: You sort of compare the reality with the potential and see a lot lacking.

A58: Right. You compare what it could have been and what it is and there is too much lacking. Far too much!

D59: I can certainly understand that.

A59: But I have to make a go of it (Pause). I have to work enough to get a decent thesis out, to learn enough to write a good thesis, and to do it fast enough so that my work will be one step ahead of the decay process (Laughs).

D60: Your self-respect demands that you find some way out.

A60: Right. And my self-respect also demands that I find some way out myself. I should not have to go and seek help from other people. You know, when I talk to one or two other boys about this they say, "Your problem is psychological and you should go and see the psychological counselor." It could be psychological but an element of my self-respect is that I should solve my problems myself. And it seems to me that I see with a fair degree of clarity just what my problems are. Half the solution to any problem lies in seeng what it is.

D61: So it's not really a queston of whether he could help you or not, it's more a question of—you feel like you should be able to solve your problems yourself.

A61: Right. And there never has been a situation in the past in which I couldn't solve my own problems, no matter what they were. So I'm not willing to accept defeat on that count.

D62: So you don't really feel like you are beaten yet.

A62: No, certainly not! I feel that I'm down but I feel that I'll be up. (Laughs) No, I certainly don't feel beaten at all. But I do realize that doing nothing about if for a sufficiently long time could take me to a state where I was effectively beaten because I couldn't drag myself up. But I haven't reached that state. (Pause) I feel reasonably confident that I can drag myself up, I don't know how but (Pause).

D63: So you feel that at this stage of the problem, something constructive can be done, but that may be, if you let it go on and on, it would get out of hand.

A63: Right! Right! And I even feel that at this stage, something constructive could be done by myself alone. But I'll be damned if I know what it is. (Laughs) There is just that vague feeling of confidence in yourself, which sometimes turns out to be wrong. You know, you always tell yourself, "Heck, I've pulled myself out of ruts before and I'll do it again." But every once in a while it doesn't happen that way, people don't pull themselves out. I only hope that I can do it but (Pause) I'll be damned if I know what I can do.

D64: So behind the problem you still feel adequate to deal with it but just what the solution is, you don't know yet.

A64: Basically yes. And I don't know just what the basis of this confidence is. If someone were to ask me, "Why do you feel confident," I wouldn't be able to give an answer. I have been told by people who have known me that, from the outside, I do look self-contained, a more or less confident individual. But of course, inside one is never the way he seems to another person. Knowing yourself from the inside you are never as sure of yourself as an outsider can be. In spite of that I feel sure of myself to a certain extent. So there is no reason that I can offer for this confidence, having known myself from the inside with all the uncertainties that I have. An outsider who has known me for a while would say, "Well of coures you'll pull through, you're a more or less balanced individual, of course you'll pull yourself through." But from the inside of course, I'm not a balanced individual. No one is if one goes deep enough. So I've no reasons to offer as to why I should feel confident except for the fact that life has gone on in such a way that nothing catastrophic has happened so far. Things seem to have a worked out just right. Otherwise I can see no reason why I should feel as confident as I do.

D65: So you sort of feel that you are not as adequate to solve this thing as other people think you are and yet you still feel that you are adequate.

A65: Yes. I mean that other people are not willing to recognize that I do have a problem. People in the department at Northwestern, who know me fairly well, are unwilling to admit that I could have a problem—that I could be struggling this way with myself. They feel that I haven't worked hard enough in the past six months, but that this kind of thing often happens and that I'm really all right.

D66: It's sort of puzzling to you that they can't even see the war going on inside of you when it is so important.

A66: Right. Well, I can see why that should be so. I try very strongly not to reveal too much of my interior to other people, to sort of preserve an exterior, a very conscious sort of hypocrisy. It is hypocrisy, but it is conscious and I would acknowledge that so it ceases to be a crime. So I can understand why people wouldn't see the thing either as existing or as being important.

D67: So may be your self-respect sort of demands that you not show too much of what is going on inside.

A67: Right. I think that is a very important element in my behavior. If I have problems, I feel that I should keep them to myself. I shouldn't have to go around to people and tell them that these are my problems and ask them what to do about them. And people shouldn't come to me and say, "Jesus, man, you look like a cat with a lot of problems." (Laughs) That is something which I certainly can't stand.

D68: You wouldn't want that to happen.

A68: I certainly wouldn't want that to happen.

D69: So you don't let them see.

A69: Yeh ! And apparently I do that well enough so that they just can't see that or believe it. They don't believe that it exists. I myself have to do something about it. And I recognize what the problems are and have to do somethng about them.

D70: So you feel that at least in your own mind you have made some progress in defining the problem.

A70: Right. I think that at the end of last term I was at the stage where I didn't even know what was wrong. I was off the mark to the extent that I thought that getting away from Northwestern would be very important. You know, getting a job out some place else. Well it was important in a very minor sense. A change of surroundings always helps. But I was foolish to think that could be important enough by itself. Toward the end of the summer and the beginning of this term it became clear that this wasn't as important as I had thought it was. So I have overcome the total ignorance of thinking that getting away from Northwestern was the solution.

D71: You tried one solution and you realize now that that wasn't the way.

A71: Yes. That had pretty much no relevance at all. (Long Pause)

D72: So now the question in your mind is what next.

A72: Yeh ! (Pause) Here I just don't know. (Long Pause)

D73: And yet underneath it all you feel like somehow or other you are going to work this thing out.

A73: Right. There is a vague notion that somehow I'm going to work it out. But it is the vaguest of notions. Somehow I can't picture myself going to the dogs. I'll do something. (Laughs) I just can't be stupid enough to allow that to happen.

D74: So in a way, this self-respect which contributes to the problem by kind of locking up your feelings inside, is also the same force which is going to work things out.

A74: Yes, hopefully. Right. Probably a person without this feeling would have been tempted to give up at an earlier stage. A person without this feeling of confidence in himself would have been tempted to say, I'm not capable of solving this or, I must go to a third person, or I'm going to do something very drastic about it, or—I don't know. In general he might decide that he himself could not solve it. But, you are right, the very element of keeping up appearances which contributes to the problem by locking things in myself is the same element which contributes to my self-confidence. Of course it is silly to think that self-confidence alone could pull me through because there are clear circumstances which are creating the problem. And something will have to be done about the circumstances.

D75: Uh huh. There are external forces acting on you that are contributing to this thing also.

A75: Right. I have to do something about them. So the problem is really deciding what I want to do about them. Then I must force myself to go through with it.

D76: So you are beginning to feel that the problem is one of adapting yourself to these external forces.

A76: Right. Right. I must tell myself, "Look, the circumstances are such that, beyond minor alterations here and there, you can't basically alter the circumstances in which you find yourself. Therefore, rather than try to adapt the circumstances to you, now try to adapt yourself to the circumstances." This is what I have not done in these two years. I have continued to be the same individual I was when I came here. The difference in the circumstances coupled with the continuity of my "being" has caused all these difficulties. Now I realize that I can't change the circumstances—I have to do something about changing myself—at least my reaction to the circumstances. I have come to the definite realization that, "You've tried for two years and beyond such and such you cannot alter the circumstances." I cannot hope for, ask for, or expect very deep human attachments here. This is a fact I have to accept. This is a fact I did not accept in these two years. And you know, because I didn't have these attachments, I have been unhappy and this and that. But now I tell myself, "You've tried for two years, you haven't found it, you aren't going to find it. And you must somehow adapt yourself to work in these circumstances in which there will be a lack of human attachment. And you have to live with the circumstances and alter yourself, rather than alter the circumstances." But this is a pretty difficult thing to do. I'm 23, I was 21 when I came here, and I'm pretty grown up by this time so it's difficult to change.

D77: You feel that you have reached an age and level of maturity at which it is difficult to make an alteration.

A77: Right. I have a more or less full grown set of values. I don't feel that I have to alter those values basically but I have to adjust them to new circumstances and it is quite difficult. Very difficult, but I have to do it, and I feel vaguely confident. Of course, part of this is coupled with the fact that I like the kind of attachments I have tried to form and failed to form. I place a great premium on such attachments.

D78: That is still a basic need.

A78: Still a basic need. And therefore to tell yourself that you have to do without them, however temporarily, is still a very difficult thing to acknowledge and work on. But it has to be done, it has to be done. People in all sorts of circumstances do it and I will have to do it too. I feel it will take a long while but—

D79: So you kind of see the problem now as one of having come into a new environment with a personality structure which was well suited to the old environment, and now here you are transplanted to a new place with new forces working on you and it is sort of necessary to adapt but also very difficult because the old values are deeply important.

A79: Yes, deeply important. They are deeply ingrained but more important than that, they seem to me to be the right values. If I could somehow reason myself into their inadequacy, then I would be more ready to shed them.

D80: So it is a little puzzling as to why they are not here in this new environment.

A80: Yeh ! And I somehow have to adjust (Long Pause). The difficulty has been that all these two years I haven't made any effort to change myself. None whatsoever, and that effort has to be made.

D81 : If you don't make the effort the adjustment won't happen ?

A81: No, I'm certain that it won't happen. Just by looking at the past two years. Adjustments of the type I have to make don't happen by themselves, no, you have to make a conscious effort to do it. And I just haven't made the effort at all, because I thought that the kind of personality I had was the kind of personality I would continue to like having. It fitted in pretty well with the circumstances I lived in. It seemed to me to be a personality, no part of which I would like to shed. And yet here I am and some parts of my personality just aren't relevant and have to be shed. So it's a pretty difficult process.

D82: So life was very satisfying and you were an adequate personality at home.

A82: Right. And I've ceased to be an adequate personality.

D83: Without changing at all.

A83: Without changing at all. And in the back of my mind there is this thing which keeps telling me, "Oh, no ! You are an adequate personality. The circumstances are wrong." And yet, at some stage I have to realize that I cannot alter the circumstances. Therefore, the definition of the word adequate has to change. An adequate personality is one which copes with circumstances. And what was adequate there just isn't adequate here. There is no point in hanging on to things which were suited to a different environment and aren't suited here. Take some simple things, for example. In the type of family in which I was brought up it was quite a virtue to be nonaggressive. By nonaggressive I don't mean anything physical. But in evryday life just to be sort of mildly self-effacing is considered to be quite a virtue.

D84: This is the way people should behave.

A84: This is the way my father behaved. Therefore, this is the way I learned to behave. This is the way my mother has always told me is a nice way to behave. And it has always been very adequate. That is to say, I have missed nothing because of that. I have been allowed to be happy with that kind of a personality; but that doesn't work here. And yet in the back of my mind I keep telling myself, "There was nothing wrong with that, it was quite all right, you were a decent person then, why do you have to change?" And yet circumstances are different so I have to change. That just isn't adequate enough.

D85: So you feel that one of the ways in which you have to change is to be a little more aggressive, the way people are here.

A85: Yes. Specifically in connection with getting to know people. At home, even by being sort of mild and self-effacing, social factors worked in such a way that you still could know a lot of people. But here, unless circumstances throw you together in a special way, you do have to go out to meet people. You have to make the effort.

D86: You have to assert yourself.

A86: You have to assert yourself! If you are in a group of people, you have to make your presence felt. Otherwise people just won't take note of you. People will take note of the person who is making the largest effort to make his presence felt. And yet I tell myself that it is crude and vulgar to make an effort to make your presence felt.

D87: Because that is the way it was at home.

A87: Yes. At home it was considered crude and vulgar if you tried to put yourself forward. And that isn't adequate here. The result is that I know very few people apart from those I know by force of circumstances. I don't make the effort to know more people. I have been here for two years, I eat in those dining halls, I've been eating there every day for two years now, and yet with one or two exceptions I have never made an effort by sitting at a table where I didn't already know most of the people there. Not merely girls, but even boys. There are people whom I would like to know, who seem from a distance to be very nice people, but I just won't make the effort to go and sit down with them. They would be perfectly happy to have me there I am certain because—I have some confidence that I am not an obnoxious personality.

D88: And these people seem receptive from a distance.

A88: Yes. And yet I won't go out and make the effort.

D89: You feel that this is one of the ways in which some kind of adaptation is needed.

A89: Right. It is very necessary. There again, with regard to girls, at home it somehow happens that you don't have to go out to meet girls, you just come to know them. Your sister knows someone, or may be there are two or three girls who live in the neighborhood and you get to know them, or your mother knows someone. You just happen to know a set of girls who are nice and whom you can go around with and talk with, without having to make the formal effort of going out and knowing girls. And you can be a very mild and nonaggressive person and yet know a lot of girls. Here it is just the other way around. If you don't make the effort, you are out. You are just out !

D90: Getting to know girls is one of the areas in which you have to be especially aggressive.

A90: Right. There again, you tell yourself, "God, that's crude, you can't do that. (Laughs) I mean, that's vulgar. How can you do it ?" And yet it has to be done. It isn't crude and vulgar; it may have been crude and vulgar under a different set of circumstances but here it is just the right thing. There are no absolute norms of crudity and vulgarity. It is just a question of what the norms of that particular social set are. By the norms of my social set at home, it might have been crude and vulgar, but it isn't here. I have to tell myself that since it isn't here, I have to act differently. (Long Pause) So it's a pretty difficult course of adaptation which should have started long ago but was deferred by the illusion that circumstances could be made to change—which is pretty absurd. It's obvious that an individual can't change circumstances. That's totally beyond his control. He can only change his reaction to them. That is, he can adapt himself. That is the only thing he can do. (Pause) I guess the realization is coming rather late, after two years.

D91: So, in a way, you are understanding what needs to be done and yet it is a very painful thing to do.

A91: Yes, very painful. (Long Pause)

D92: And the thing has become necessary because now it is affecting your work.

A92: Right. It is necessary because now it is affecting the whole fabric of my future. That is totally dependent on my doing these things. (Pause)

D92a: So it seems like the alternatives are—adapt in this environment and succeed, or return home and carry on with the physics where it is not necessary to adapt—and the latter is a very distasteful thing to do.

A92a: Right. (Pause) Because that would cause disappointments in people in the family and disappointments in myself. And in general, for any individual, acceptance of failure is not a very happy thing.

D93: So any particular path which you choose out of this dilemma involves some kind of pain.

A93: Right. And it seems to me that the least painful way would be the one which involved my adapting myself. For the simple reason that, once I make the initial stages of adaptaion, I can get a lot of pleasure from the altered circumstances which I am missing now. I have this vague feeling and—

D94: So you think that the avenue of adapting would be the more rewarding one in the long run.

A94: Right. More rewarding and less painful. Quite frankly, not only will I be giving pleasure to myself, it's very possible that other people could find pleasure from my company.

D95: Uh huh. It's probably a reciprocal thing.

A95: It is certainly true that I come from different circumstances so there might be a variety of things others would be interested in; which they could find in me and not in other people around here.

D96: So you have some evidence that when you do begin to communicate with people, that there are certain things that they respond to.

A96: Exactly. Even in this country, whenever I have formed any acquaintances beyond the casual it has never happened that I have not been rewarded. The first boy I got to know well enough here, this Irish boy who is no longer at Northwestern, but used to be, I got to know him very well—I got to know his family, I got to know his girl friend's family very well—and they all have reciprocated in a much fuller fashion than I expected when the friendship started out. So from the scattered instances I have gathered here, there is no reason I should fear not being rewarded—on the average—as I would like to be. There is no reason why it shouldn't work out that way.

D97: So you feel that breaking down the initial barrier is the main problem.

A97: Yes. Because where circumstances have somehow broken the barrier down, rather than myself having broken the barriers down, I have always been rewarded.

D98: Then there seem to be strong forces that make it go.

A98: Right. So if I could break the barriers down in other cases myself, where circumstances just don't happen to work the right way, or don't happen to do all the work for me—I'm sort of waiting for circumstances to do all my work for me. (Laughs)—That can't always happen—

D99: And to do it some other way is to be "aggressive."

A99: Right. In all the cases where I have known someone relatively well it has happened because we were thrown together. This Irish boy, I got to know him quite well because we met on registration day and then later found out that we were supposed to be in the same office with no third person. We shared the same office for a full year. So, we were thrown together and it worked out very fine.

D100: Here was just a random person, circumstances broke down the barrier, and a rewarding relationship ensued.

A100: And he is the kind of person who selects his friends very carefully. And he is also the type of person whom other people don't take to very easily. He is a cranky sort of person, very inividualstic, so he formed pretty much no other attachments, with one or two possible exceptions. Later, other people shared the office and new relationships didn't work out too well for either of us. So if he is selective and yet we could develop a fruitful relationship, then I have no reason to worry too much.

D101: You feel that if it can be done under the worst circumstances it should be possible more often.

A101: (Long Pause) And yet it requires a change in my personality which, I find very difficult. (Long Pause)

D102: Well, are you in the mood for a game of ping pong ?

A102: Sure, I used to be pretty good.

Frederick Winslow Taylor[*]

FREDERICK WINSLOW TAYLOR, universally known as the "Father of Scientific Management" died on March 19, 1915. Within a few years after his death, his place in the industrial history of the world seemed to be assured, for he had laid, almost single-handedly, the foundations for both the science of management and the wholly new profession of industrial engineering. Such eminent contemporaries as Walter Lippman, Louis Brandeis and Dean Edwin Gay of Harvard Business School unhesitatingly called him a "great man" and new business schools such as Harvard and Dartmouth adopted Taylor's system of "Scientific Management" as the core of their curriculum. The spread of his ideas was not limited to the United States. By 1918 Taylor's system was taking on the trappings of an international movement, independent of particular economic systems or political ideologies. In France, a circular of the Ministry of War, dated February 26, 1918 and signed by George Clemenceau, pointed out the imperative necessity of the study and application of the methods of work according to the principles of "Taylorism" and ordered the establishment in each plant of planning

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[*] This case, Frederick Winslow Taylor, was prepared by Professor Sudhir Kakar of the Indian Institute of Management, Ahmedabad. The material for this case is taken from his book *Frederick Taylor: A Study in Personality and Innovation*, Cambridge : MIT, Mass. Press 1970, initiated and completed as part of the programme in applied psychoanalysis at the Harvard Business School under the direction of Professor Abraham Zaleznik. Copyright © 1970 by the President and Fellows of Harvard College. Used by specific permission.

departments, a central feature of the Taylor system. At the opposite end of the ideological spectrum *Pravda*, in its issue of April 28, 1918, published an article by Lenin exhorting the Soviets to study and master the Taylor system.

The fact that both a conservative bourgeois regime in France and a revolutionary regime in Russia propagated Taylor's system should not be a surprising one. To them, Taylor's work was a part of *technology* with its implications of *universality* and *neutrality*. What Taylor had done was to enlarge the concept of technology which had hitherto been restricted to mechanical and chemical processes. His effort was to bring human work and the organization of work into the realm of technology. The principal moral "commandment" of his system was the increasing of productivity.

Taylor's system was directed to the following ends:

(*a*) the *standardization* of work, which meant the determination of the "one best way" of working; and
(*b*) a *control* so extensive and intensive as to provide for the maintenance of all these standards.

The time and motion studies, the introduction of planning departments, the charts for routing and scheduling, the standardization of tools as well as working conditions, the incentive schemes, the new methods of cost accounting ... all of these innovations were parts of a system which took the control of production out of the workers' hands, as had hitherto been the case, and placed it firmly with the management. He was thus a prophet of modern work, revolutionizing industrial work to a degree which is hard to visualize without an extensive knowledge of the work patterns of the eighteenth and nineteenth centuries.

CHILDHOOD AND EARLY YOUTH

Fredrick Taylor was born in 1856 in Philadelphia, and was the fifth generation of his family to be born in America, descending from an English Quaker who had settled in the region of the lower Delaware River in 1677. The family had steadily prospered and Taylor's grandfather, Anthony Taylor, had been a leading merchant who had amassed a fortune in trade with the East Indies. This had enabled him to retire at the age of thirty-eight to a country estate. He was also a banker and a financier and one of the original organizers of the Farmer's National Bank of Bristol. Taylor's father, Franklin Taylor, was the youngest of Anthony Taylor's eleven children.* To describe him in a sentence, one would say that Franklin Taylor was a gentleman of leisure, the Philadelphia counterpart of the English "squire," a pillar of the Philadelphia Quaker community which was concerntrated around Rittenhouse Square and in Germantown.

Though the Quaker elite had lost political control of Pennsylvania after their refusal to support the Indian Wars of the 1750's, they formed a "solid" upper class parallel to the "fancy" Episcopalian upper class which lived on the Main Line. The dominant characteristics of this Quaker upper class were seclusiveness, simplicity, moral fervor, and clannishness. The Quaker aristocracy was more intellectual and introspective than its Episcopalian counterpart, and had a strong sense of family tradition and of caste. Franklin Taylor was a member of this caste. He shared and accepted its norms and it may not be, in fact, unreasonable to describe him as a gentleman of leisure, with the present connotations of the term. Of course, one did not work in the sense of holding a job to make money, or to get ahead. On the other hand, the Quaker ideal frowned on "one-who-did-not-work," or the wastrel. This resulted in a few of the professions being considered worthy of a gentlemen. . . medicine, law, banking, and running the family firm. A lawyer in Philadelphia, using *Esq.* after his name, while everyone else had a *Mr.* before his, was accorded the same reverence as a Divine in Puritan Massachusetts or as a Herr Professor in Germany. The dilemma of how to get around the "job-aspect" of the profession was resolved by not being a practicing lawyer for any great length of time. Though there were non-practicing doctors, much more common were the non-practicing lawyers.

In keeping with his position and the values of his times, Franklin Taylor was graduated from Princeton in 1840, took his M.A. from the same university, settled down in Philadelphia and was admitted to the bar in 1844. His practice of law, perfunctory at best, was soon given up and the only work which took up any amount of his time was his position as a secretary to a charitable organization. He thus fulfilled the Quaker ideal of combining "work" with "Good works." Franklin Taylor was a cultivated man who loved poetry, history, languages, especially the classical ones and spoke highly of Cicero's *Orations*. Taylor's recollection of his father was "of his soft, mild manner and gentleness which is almost that of a woman."[1]

Of Emily Winslow Taylor, Frederick's mother, we are told that she had the stronger character. The women in the Winslow family were reputed to have been strong, self-reliant, and willful, believing in the power of private inspiration. Emily Taylor's grandmother, Thankful

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[1] Letter to Morris W. Cooke, December 3, 1910, Taylor Collection, Stevens Institute of Technology, Hoboken, New Jersey.

Hussey, had acquired some fame as a Quaker woman preacher who often travelled unattended and on horse-back from Maine to Rhode Island, preaching en route. Emily Taylor herself was a strong energetic woman, one of the leaders of the Suffragette movement, who believed in the English ideal of keeping all one's emotions properly and decently suppressed. Her system of child-training was all "work, drill and discipline" while her household "truly was a thing, ruled, regular. . . ."

> To one member of the family was assigned the duty of seeing that all the match receptacles were kept filled; and when after two years, she one day found a receptacle that had not been filled, the important thing with her was, not that all receptacles had been kept filled for two years, but that on this day there had been a lapse.[2]

The retribution that followed was swift and "just" for Emily Taylor was determined that her boys, Frederick and his older brother Edward, (the younger sister Mary completed the house hold 3 years after Frederick was born) should grow up "pure in mind and body." When the family was in France and the boys were being drilled in French under her strict supervision, it was her habit to go over the texts first and then pin together pages which she considered unfit for young eyes. It was her opinion that indulgence on the parents' part was not a sign of love but of carelessness; what was demanded was a "thinking love."

In his boyhood play Taylor was severe in his observance of each and every rule of the game, whatever the game might be. In a game of croquet he would carefully work out the angles of the various strokes, the force of impact and the advantages of overstroke as against understroke before he started to play. In cross-country walks he constantly experimented with his legs in an endeavor to discover the step which would cover the greatest distance with the least expenditure of energy.

Birge Harrison, who knew Taylor almost all his life writes in his recollections:

> Fred was always a bit of a crank in the opinion of our boyhood band, and we were inclined to rebel sometimes from the strict rules and exact formulas to which he insisted that all of our games must be subjected. To the future artist (Harrison) for example, it did not seem absolutely necessary that the rectangle of our rounders court should be scientifically accurate, and that the whole of a fine, sunny morning should be wasted in measuring it off by feet and by inches.[3]

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[2] Frank B. Copley, *Frederick W. Taylor, Father of Scientific Management*, New York: Harper Bros., Vol. I, 1923, p. 53.

[3] Birge Harrison, Recollections, August 25, 1915, p. s., Taylor Collection (Stevens Institute of Technology, Hoboken, New Jersey).

Taylor suffered from insomnia all through his life. At the age of twelve, being troubled by nightmares, he constructed for himself a harness of straps and wooden points, the latter so arranged that whenever in his sleep he turned over upon his back the wooden points would press the dorsal muscle and at once awaken him. Before going to a dance he would consciously and systematically list the attractive and unattractive girls with the object of dividing his time equally between them. In the diary of his trip to Europe at the age of twelve, the only curious feature is the occasional listing of all stations that the train passed through with the exact times of arrival and departure.

It is also noteworthy that Taylor never was at ease in witnessing hostile scenes. Time after time he would play the role of the peacemaker. Throughout his adult life, Taylor would insist that scientific management was the only system which would make for peace and harmony between the management and the workers and that this was its only *raison d'etre*. As one of the workers who worked under Taylor during his early years at Midvale Steel perceptively put it:

> . . . . His work under the new Taylor System, seemed to be of the most contradictive character, that is he was working hard and quarrelling with many people to establish a system. . . the aim of which was to make permanent peace between employer and employee.[4]

In 1872, at the age of sixteen Taylor entered Exeter along with his brother to prepare for Harvard. It was intended that the brothers follow the two sacred professions, Edward was to become a doctor and Frederick a lawyer, his father's profession. At Exeter, in his senior year, he led his class and diligently studied the classics, Virgil's *Bucolics*, *Georgic* and *Aeneid*, *Plato* and *Herodotus* in Greek. However Taylor would write in a school essay :

> In practical life a knowledge of the classics is of about no benefit to any but professional men. . . when there are so many other studies which are equally good training for the mind, and which would be of use to us in our business and our professions in after life I do not think that time is well spent in studying Latin and Greek.[5]

He suffered from frequent headaches and restless sleep which he later attributed to the hard work of this period. He experimented with the harness and a variety of pillows, one made of tufted hair cloth and another made from a board covered with canvas. He also tried stretching strings across the bed uprights, and would then wake up with marks of the strings covering his face. In spite of the troubled sleep, he passed his entrance examination for Harvard with honors. He thus seemed to be well set for a career in law when he complained of failing eyesight, and went back to his parents' home in Germantown.

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[4] William Fannon, Recollections, Taylor Collection, *loc. cit.*

[5] Frederick W. Taylor, "The Study of Classics," unpublished manuscript, Taylor Collection, *loc. cit.*

It must be mentioned that his father had complained in one of his letters to Taylor of "a great weakness of my eyes. . . . indeed I cannot read or write for any length of time without pain in my eyes and headache, but I think with time and care I shall entirely recover."[6] After returning home and having abandoned his plans to attened Harvard and pursue a career in law he is reputed to have been a very disappointed young man.

Taylor spent a few months at home, restless, roaming about the house, unable to study and avid for the smallest jobs, such as carrying stones for his mother's hotbeds. If there were any reproaches made for his "failure" it was not by his parents but by his own conscience.

In late 1876, he joined a small firm, Enterprise Hydraulic Works, as an apprentice patternmaker and machinist. In the small, dark machine shop, the hours were long. Taylor would breakfast at five-thirty in the morning and then begin work by sweeping the floor. Although he hated manual labor and his eyesight was very early restored, he persisted in the weary duties of an apprenticeship, earning nothing in his first year, $1.50 a week in the second and third years and $3 per week in his fourth year. He was perhaps the only common laborer in America who was a member of the Philadelphia Cricket Club.

He sang tenor in a choral society and enthusiastically played in amateur theatricals, in which, besides being well known for his interpretation of the part of a German doctor who spoke broken English, he was famous for the fidelity and true to life quality of his performance of feminine roles.[7] In the four years of his apprenticeship, Taylor tried hard to identify with the workers. He imitated their dress and manners and always regretted that he could not learn to chew tobacco. More important, to the consternation of his family and friends, he learned to swear :

> . . . . he would let loose a few good ones in the presence of the ultra respectable and the ultra staid. . . He did not swear when most men would and did swear when most men would not dream of it . . . We may imagine that no feathered, non webfooted mother was more amazed and bewildered upon seeing her chicks take to water than was Emily Taylor when her offspring brought back from the shop a readiness to use words beginning with a big-big-D.[8]

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[6] Letter from Franklin Taylor, February 22, 1874, Taylor Collection, *loc. cit.*

[7] Copley Vol. I, p. 88.

[8] Copley, Vol. I, p. 90.

Taylor later came to remember the apprenticeship period as the best training he ever had. This period, he said, taught him a profound respect for the American workman. In a lecture to Harvard students in 1910, he elaborated on this theme:

> Now, I assume that most of you gentlemen are not the sons of working men, and that you have not yourselves worked during any long period of time, at least, with working men, and on the same-level with them. The fact is, that in all essential matters, they are just the same as you and I are. The working man and the college professor have fundamentally the same feelings, the same motives, the same ambitions, the same failings, the same virtues. . . . We are all of the same clay.[9]

Taylor started his career in industry in 1874 during the period of very rapid industrial expansion which, by the end of the century had made the United States the greatest industrial power in the world. This period brought the Industrial Revolution to its full flowering; by its end the United States had overtaken Great Britain and outraced Germany in industrial manufacturing. This was also the factory age, with the number and size of factories steadily increasing, spelling the destruction of the old artisan handicrafts. Until the middle of the nineteenth century, America had been a nation of small and medium businesses, but in the second half of the century the situation changed radically. As late as 1850, one of the biggest plants in the country was an ironworks that employed about a thousand workers. The average New England textile mill employed two to three hundred operatives. No shop was so large that the manager did not know the older workers, and in most cases the manager was the owner or the active partner. The management style was a *personal* one, problems being solved *ad hoc*, empirically for each establishment. Knowledge about the solution was transmitted by observation or word of mouth and in most new firms had to be again rediscovered. Managment was a kind of personal autocracy, depending completey upon the personality of the owner. With increasing factory size and increasing separation of ownership and management, the stresses on personal, autocratic management became correspondingly acute.

The problem was further complicated by the social upheavals in the aftermath of the Civil War and by the increasing labor unrest. Frequent depressions, lightning changes in technology that led to job insecurity and urban overcrowding, increased the labor unrest and gave impetus to the trade union movement. The stage was thus set for Taylor's work and Philadelphia, his hometown, was very much in the center of these changes and the strain they effected on social and industrial life.

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[9] Frederick W. Taylor, *Workmen and Their Management*, unpublished lecture manuscript 1909, Harvard Business School, pp. 13, 14.

YOUNG ADULTHOOD

In 1878, at the age of twenty-two, Frederick Taylor finished his apprenticeship as a patternmaker and machinist. In the same year he joined Midvale Steel Works as a common, unskilled laborer. In the year Taylor joined Midvale, there were perhaps four hundred men employed there. In a way, it was a microcosm of the industrial world of the period of transition between relatively small and large scale production, bigger than the typical factory before the start of industrial expansion and much smaller than the steel works of the early tewntieth century. It was owned jointly by two friends of the Taylor family, E.W. Clark and William Sellers. There is much evidence to suggest that Taylor selected Midvale because of the personality of Sellers, the president of the company. Sellers was one of the most noted engineers of the country. He had an impressive physical presence—powerful build, bushy eyebrows, curving mustache and an imperial beard. Extremely self-confident, he had the reputation among his employees of being able to "growl like a lion, kick like a steer, and bawl like a bull."[10] Taylor, and there is no other word for it, absolutely adored Sellers. Sellers gave him "character" which Taylor defined as the ability to control one's self, body and mind, the ability to do things which are disagreeable along with unquestioning obedience to one's superior. There were many incidents with Sellers that demonstrated these lessons in character. Once Sellers gave him some drawings that he wished to see developed further. In a day or two Taylor returned with an entirely new set of drawings of his own preparation. "What are these ?" asked Sellers as he started to look them over.

Enthusiastically Taylor informed him that he had become convinced that his (Seller's) ideas were impracticable and so he had worked up some of his own. In Sellers office a fire was burning in the grate, and Sellers promptly threw the drawings into the fire.

"The next time," said Sellers, "perhaps you won't abandon any of my ideas as impracticable till you have first tried them out."[11]

There were other incidents of this kind, and later in his life while lecturing to young men in college, Taylor spoke of the important lessons they contained.

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[10] Copley, Vol. I, p. 108.

[11] *Ibid.*, p. 135.

> For success, then, let me give one simple piece of advice beyond all others. Every day, year in and year out, each man should ask himself, over and over again, two questions. First, "What is the name of the man I am now working for ?" and having answered this definitely, then "what does this man want me to do, right now ?" Not, "What ought I do in the interest of the company that I am working for ?" Not, "What are duties of the position that I am filling ?" Not, "What should I do for my own best interest ?" but plainly and simply, "What does this man want me to do ?". . . the most important idea should be that of serving the man over you his way, not yours; and that this lies, generally speaking in giving him not only what he wants but also giving him a little extra present of some kind.[12]

Taylor came to work directly under Sellers only in 1881. For the first three years, his superior was Charles Brinley, a "scholar and a gentleman," whom Taylor cordially hated for his "aloof," aristocratic ways. Taylor's private chamber of horrors consisted of bankers, scholars, theologians and Germans and he never lost an opportunity to express his disdain of classical education or gentlemanly ways. If he had really wanted to, after his entry into the company, with his no difficulty in Exeter education and his social connections, there would have been getting a white collar job, at least as a clerk. Taylor had to substitute as clerk for a short time but his comment on that experience was:

> I did the work all right, although it was distasteful to me, and after having trained another clerk to do the work of the shop I asked permission of the foreman to work as machinist.[13]

Shortly after this the management wanted a gang boss to take charge of the lathes and Taylor was appointed to this position. Previously the workmen in the shop, including Taylor, had an agreement to limit output. This limit was about one-third of the possible output and was a good example of restriction of output found in all the industrial countries.

As soon as Taylor became the gang boss some of the workers came up to him and the following conversation (in Tayor's words) followed:

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[12] F. W. Taylor, Lecture on "Success."

[13] See Taylor's testimony in U., S. Congress, House Special Committee, hearings to investigate the Taylor and other systems of shop management, 3 Volumes, Washington, D. C., Government Printing Office, 1912, Volume III, p. 1413.

> Now, Fred, you are not going to be a damnpiecework hog, are you ?
>
> If you fellows mean you are afraid I am going to try to get a larger output from these lathes then, yes, I do propose to get more work out. You must remember I have been square with you fellows up to now and worked with you. I have not broken a single rate; I have been on your side of the fence. But now I have accepted a job under the management of this company and I am on the other side of the fence, and I will tell you perfectly frankly that I am going to try to get a bigger output from these lathes.
>
> Then, you are going to be a damned hog.
>
> Well, if you fellows put it that way, all right.
>
> We warn you, Fred, if you try to bust any of these rates we will have you over the fence in six weeks.
>
> That is all right. I will tell you fellows again frankly that I propose to try to get a bigger output off these machines.[14]

This was the beginning of a piecework fight which lasted nearly three years. Taylor fought with the usual management methods of time, fines, and dismissals while the workers, even the new ones, persisted in refusing to increase the output. The fight generated increasing bitterness. Taylor, who had set such great store on his good relationship and camaraderie with the workers became increasingly anxious as this relationship steadily deteriorated.

Some of the workers even threatened him with physical violence and in one case actually threatened to shoot him. However in spite of this evidence Taylor, in his testimony at the Congressional hearings of 1912, maintained that his relationship with the workers was one of mutual friendliness and that any strains existed only inside the factory and were forgotten by him, and presumably by the workers, immediately after working hours.

Later on he would say:

> I was a young man in years, but I give you my word I was a great deal older than I am now with worry, meanness, and contemptibleness of the whole damn thing. It is a horrid life for any man to live, not to be able to look any workman in the face all day long without seeing hostility there and feeling that every man around is his virtual enemy. This life was a miserable one and I made up my mind either to get out of the business entirely and go into some other line of work, or to find some remedy for this unbearable condition.[15]

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[14] Hearings, Volume III, 1411 ff.

[15] Hearings, Volume III, 1414.

In these three years, Taylor worked in the shops of Midvale from 6 : 30 in the morning to 5 : 10 in the evening and then walked the two miles back to his home. He often volunteered to work on Sundays as well as overtime on weekdays. After work he studied at home taking courses in science and engineering. After walking home from work and eating dinner he would set his alarm clock for 2 a. m. when he would rise, bathe, and dress in his working clothes to study until 5 a.m. He would then lie down for half an hour's sleep before eating breakfast and catching the six o'clock train at the Reading Railway Station which would bring him to work. As the fight with the workers progressed his study habits were to change. After finishing studying he would not go to sleep immediately but take a midnight run through the deserted streets of Germantown.

In 1881 the fight with the workers came to an end. The "aloof" Brinley had retired and Taylor came in close contact with Sellers. Taylor now tried to analyze the causes for the fights with the workers and came to the conclusion that no one really knew what a fair day's work was. Realizing this he asked permission from Sellers to make a a series of experiments to find out how quickly various kinds of work ought to be done. One of the types of investigations which was started at that time came to be later known as the "time study."

The years between 1881 and 1890, when Taylor left Midvale, may also be called the "years of achievement."Freed from personal anxiety, he was now able to direct his tremendous energy toward revising and incorporating a theoretical solution into a practical system. By 1883 at the age of twenty seven, Taylor had received his Master's degree in mechanical engineering, through home study, from The Stevens Institute of Technology. By 1884, in a period of six years, he had advanced from the position of unskilled laborer to that of chief engineer of Midvale. This was also the year in which he married Louise Spooner, a girl he had known since childhood. In this period the foundations of scinentific management were laid; the standardization of tools, the establishment of a repair shop with standardized procedures for the inspection and repair of machine tools and belting; the setting up of a central planning room which scheduled the route of each assembly and subassembly in advance, the introduction of a refined cost-accounting system, the systematizatin of purchase and inventory control, the use of printed job and instruction cards, the time study, the incentive system, and others.

He was slowly winning a grudging respect from his fellow executives who eventually began to concede :

> that in the madness of a man who gets two forgings turned where only one had been turned before, there must be a gleam of method

and that it might be a good thing for the works in general to go crazy to this extent.[16]

By 1890, Taylor, then thirty-four years old, seemed to be well set for a highly successful and brilliant career in industry. In this year however an even more glittering opportunity came his way. Some members of President Cleveland's inner circle, financiers linked with Standard Oil interests, were organizing a company known as the Manufacturing Investment Company for the conversion of forest products into fiber suitable for the making of paper. Taylor was offered the job of general manager which he accepted. The company was however not too successful. His difficulties with the workers were foreseeable. They resented the "city man" with his new fangled notions of running a mill, mistrusting even the improvements he made for their benefit. For example, "barkers" who stripped the bark from logs with revolving steel discs were put inside cages in order to prevent serious accidents should passers by knock against them. The men resented this and thought it amounted to "making a monkey out of a man."

By far the most serious source of disappointment, however, was his inability to get on well with his employers—the financiers who had organized the company. Taylor said:

> Personally my experience has been so unsatisfactory with financiers that I never want to work for any of them. If there is a manufacturer at the head of any enterprise, such as ship building or construction work of any kind, and he is a large minded man, that is the man whom I want to be under. As a rule financiers are looking merely for a turn over. It is all a question of making money quickly, and whether the company is built up so as to be the finest of its kind and permanently successful is a matter of complete indifference to almost all of them.[17]

Taylor's antipathy became so intense that he resigned in 1893 and had a breakdown, the symptoms of which were insomnia and stomach trouble.

He now decided that it was unwise to carry on the double burden of executive and proselytizer for his ideas—of running a factory and introducing his system of management. He chose to concentrate on the latter, and set himself up as a consulting engineer. His consulting work was however not too successful for he constantly got into fights with his employers. His increasing inability to control his hostility towards, "those financiers" undoubtedly played a major role; forever anticipating their opposition, he antagonized them with his belligerence and impatience.

One of the more noteworthy events of this period is that he spent the winter months of 1895 working at a lathe in Sellers' company in Philadelphia and Sellers agreed to share the expenses of experimentation with cutting tools. Taylor's work eventually led to the publication of a book entitled *On the Art of Cutting Metals*. Taylor made the statement that "it was the easiest and happiest year I have had since I got out of my apprenticeship."[18]

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[16] Copley, Volume I, p. 334.

[17] F. W. Taylor, *On the Art of Cutting Metals*, New York: A.S.M.E., 1907.

In 1898, Davenport, an old associate from Midvale days, who was then a vice president of Bethlehem Steel Company offered Taylor a longterm job to reorganize Bethlehem. This offer gave him not only another chance to repair his confidence in himself and his methods, but an undreamed of opportunity to work on a much larger scale than had hitherto been his lot.

Bethlehem Iron Co. (renamed Bethlehem Steel Co. in 1899) had been started around 1860 in Bethlehem, Pennsylvania by two brothers who simply bought a farm and established a blast furnace on it. When Taylor went to Bethlemen, although a scion of the original owners was still the company's president, effective power had passed into the hands of the Philadelphia financier, Joseph Wharton. After his talk with Davenport, Taylor had a brief meeting with the president, Linderman, and then went to see Wharton, to assure himself of the backing of the most powerful man in the company. The meeting was a satisfactory one and Taylor, buoyed with hope and confidence, went in to tackle his greatest challenge.

MIDDLE-AGE

Next to Midvale, the three years at Bethlehem were Taylor's most productive years. It was during this period that the discovery of high-speed steel was made and much of his work took its final form. His work at Bethlehem was two fold: the introduction of his management principles first in the yard, and second, in the machine shop. The description of the first part of this task, known as the "Storyof Schmidt" became a classical example of Scientific Management, and was frequently used by Taylor as an illustration in his writings and speeches. (See Appendix B.) The "Story of Schmidt" also shows the authoritarian streak in Taylor, at complete variance with his assertion that Scientific Management was a means of harmony and cooperation between the management and the worker. Taylor insisted repeatedly that Scientific Management was not an efficiency system for increasing productivity though it was that too, but a "mental revolution" which made the management and the workers partners.

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[18] Hearings, Wheeler Testimony; Volume I, p. 76.

Despite the unusual financial prosperity and productivity of these years, the Bethlehem episode was also Taylor's greatest setback. The cause lay in his running battles with the great majority of Bethlehem's executives and owners whom he damned openly as "those financiers." Though the trouble with the president, Linderman (whom he considred a typical aristocrat and financier) started soon after his arrival, he could afford to ignore him as long as Davenport and Wharton supported him. There is the story that some of the directors assembled one day and tried to heckle Taylor into submitting his resignation. Taylor, however, still backed by Wharton, let them know in no uncertain terms that he was aware of their purpose but that if they wanted to get rid of him they would have to fire him, and "What was more, they one and all could go to blue blazes."[19] The violence of his responses was steadily mounting, and Taylor's written communications with Linderman, did not excel in tactfulness:

> . . .Today Mr. Davenport called my attention, for the first time to a drawing of the foundation for your new steam Hammer which is being put up. . . . I have not been consulted about this by any one, and therefore, will not assume the slightest responsibility either direct or indirect, regarding it.[20]
>
> . . . It is a curious psychological fact, and one for which the writer can find no explanation, that of all the parties who have visited the works and who are acquainted with what has been done here the only ones who have failed to congratualate the writer upon the results accomplished are with one or two exceptions the leading officers of the company.[21]

Men in his own little group were shocked by some of his outbursts. Clearly a crisis, psychological and professional, was in the offing, and finally did occur in early 1901. Taylor complained of poor health and nervous strain. The old symptoms of a breakdown—stomach trouble, sleepless nights—appeared once again. At Bethlehem, Wharton, tired of the squabbling, withdrew his support and Taylor, along with all his associates was summarily dismissed. The greatest application of the new management system was brought to an abrupt halt and for the moment, in his own eyes, Frederick Taylor was a failure.

After his dismissal Taylor did not look for a new job. He and his wife had no children and they now decided to adopt two boys and a girl and move back to Philadelphia. In Germantown, Taylor rented a house very near to "Cedron" where he had spent the first eleven years of his boyhood. Every evening he would walk down to Rose Street to visit his invalid mother. He also saw a lot of his old chiefof Midvale days, William Sellers and made plans to continue his metal cutting investigations in the Sellers shop. He now decided that he could "no longer afford to work for money" and would spend the rest of his life in the propagation of his system.

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[19] Taylor in informal conversation, cited in Copley, Volume II, p. 47.

[20] Taylor to Linderman, March 15, 1899, Taylor Collections, *loc. cit.*

[21] Taylor to Linderman, March 1901, Taylor Collections *loc. cit.*

The period between 1902 and 1910, if not the happiest, was at least the calmest period of Taylor's adult years. Although he had given up working for money, he had by no means lost the habit of work. Relatively freed from personal attacks, which had intruded upon his middle years, and settled into family life, he found a measure of serenity in what had been until then such a turbulent life.

The mornings were set apart for work, which now consisted of writing, keeping up with his correspondence, and counselling a growing number of followers engaged in introducing his system into different factories throughout the country. In the afternoons he played golf; while the evenings belonged to the family. Soon after he had moved back from Bethlehem to Germantown, he started writing the first paper which was to give a complete outline of his system. "Shop Management" was read before the Saratoga meeting of the American Society of Mechanical Engineers in 1903, although limited notice was taken of it at the time.

Meanwhile, Taylor's reputation as an engineer, based partly on his discovery of "high speed" steel, had been steadily growing. In December 1905, he was elected President of the A.S.M.E. for the following year. This drew attention to his earlier paper on management and interest in his ideas steadily grew. There was now a small but steady stream of men who came to meet Taylor and hear about Scientific Management. Taylor set aside certain days on which he arranged to speak to these groups at home and then to take them to see Scientific Management in action in the demonstration shops. The movement was gaining in credibility and respectability, attracting attention and followers in government and academic circles. Although Taylor's ideas had spread steadily among professionals, they had not yet caught the attenton or imagination of the lay public. The situation changed abruptly with the publicity provided in 1910 by Louis D. Brandeis and the Eastern Railroad Case. In this case Brandeis arguing aginst the railroads' proposal to increase freight rates, attacked their inefficiency, mentioning that they could save a million dollars a day by adopting the methods of Scientific Management.

The "million dollars a day savings" idea immediately caught the fancy of the press. Though Taylor had not appeared as a witness in the rate hearings, his name had constantly been methioned as the "father" of the movement responsible for such "miracles." The public spot light now shifted to the fifty-four year old prophet. In the following years hundreds of articles on Scientific Management appeared in newspapers and magazines. In 1911, *The Principles of Scientific Management*, probably the single most important book in the history of management, was published and by 1915 had been translated into eight European languages and Japanese.

This flood of notice and praise was marred, however, by the increasingly disparaging criticism that began to appear in editorial articles and correspondence columns in the national press. For a while Taylor, in his role as a reformer, was able to meet the criticism philosophically: "I have found that any improvement of any kind is not only opposed, but aggressively and bitterly opposed, by the majority of men, and the reformer must usually thread a thorny path."[22] But the sniping continued, in spite of the efforts of his disciples to reassure him—"the reformer is always misunderstood and misrepresented."[23] Taylor had, as we have seen, a low tolerance for sustained hostility. The situation steadily worsened, the attacks on him multiplied as organized labor now entered the fray and scattered sniping developed into a broad fusillade. Samuel Gompers, the president of A.F.L. sarcastically held forth against Taylorism :

> So, there you are, wage-workers in general, mere machines—considered industrially, of course. Hence, why should you not be standardized and your motion power brought up to the highest possible perfection in all respects, including speeds? Not only your length, breadth and thickness as a machine, but your grade of hardness, malleability, tractability and general service ability can be ascertained, registered, and then employed as desirable. Science would thus get the most out of you before you are sent to the junk pile.[24]

Taylor became more and more upset and in his last years was reputedly a disappointed and disheartened man. He withdrew more and more from the hub of the movement he had created. Fearing old age and looking back on his life he apparently experienced nagging despair and doubt about the worth of his work. On March 10, 1915, he entered a hospital with pneumonia. He was there for nine days before he died. His biographer recorded Taylor's manner in death as follows:

> Every morning in the hospital, he would get up and systematically wind his Swiss watch at the same hour. On the ninth day he was heard to wind his watch at half-past four in the morning, an unusual hour. When the nurse entered his room half an hour later she found that he was dead.[25]

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[22] Taylor to Gilbreth, November 9, 1909, Taylor Collection, *loc. cit.*

[23] Barth to Taylor, January 3, 1910, Taylor Collection, *loc. cit.*

[24] Milton I. Nadworny, *Scientific Management and the Unions*, Cambridge, Harvard University Press, 1955, p. 51.

[25] Cited by Frank B. Copley, *Frederick W. Taylor, Father of Scientific Management*, *loc. cit.*

APPENDIX A

FREDERICK WINSLOW TAYLOR

Important Dates	
1856	Born in Germantown, Philadelphia
1869-1872	Trip to Europe with parents, brother and sister
1872-1874	Exeter
1874-1878	Apprenticeship in Enterprise Hydraulic Works
1878	Joined Midvale
1884	Marriage
1890	Left Midvale
1890-1893	General Manager of Manufacturing Investment Company
1893-1898	Independent Consulting Work
1896	Mother's stroke
1898-1901	Bethlehem Steel Co.
1901	Dismissal from Bethlehem
	Adoption of children
	Giving up of paid work
1906	Elected President of A.S.M.E.
1909	Death of Father
1911	Publishing of *Principles of Scientific Management*
1915	Died in Philadelphia

APPENDIX B

FREDERICK WINSLOW TAYLOR

The Story of Schmidt

ONE OF THE first pieces of work undertaken by us, when the writer started to introduce scientific management into the Bethlehem Steel Company, was to handle pig iron on task work. The opening of the Spanish War found some 80,000 tons of pig iron placed in small piles in an open field adjoining the works. Prices for pig iron had been so low that it could not be sold out of profit, and it therefore had been stored. With the opening of the Spanish War the price of pig iron rose, and this large accumulation of iron was sold. This gave us a good opportunity to show the workmen, as well as the owners and managers of the works, on a fairly large scale the advantages of task work over the old-fashioned day work and piece work, in doing a very elementary class of work.

The Bethlehem Steel Company had five blast furnaces, the product of which had been handled by a pig iron gang for many years. This gang, at this time, consisted of about 75 men. They were good, average pig iron handlers, were under an excellent foreman who himself had been a pig iron handler, and the work was done, on the whole, about as fast and as cheaply as it was anywhere else at that time.

A railroad switch was run out into the field, right along the edge of the piles of pig iron. An inclined plank was placed against the side of a car, and each man picked up from his pile a pig of iron weighing about 92 pounds, walked up the inclined plank and dropped it on the end of the car.

We found that this gang were loading on the average about 12 1/2 long tons per man per day. We were surprised to find, after studying the matter (time study), that a first class pig-iron handler ought to handle between 47 and 48 long tons per day, instead of 12 1/2 tons. This task seemed to us so very large that we were obliged to go over our work several times before we were absolutely sure that we were right. Once we were sure, however, that 47 tons was a proper day's work for a first-class pig iron handler, the task which faced us as managers under the modern scientific plan was clearly before us. It was our duty to see that the 80,000 tons of pig iron was loaded onto the cars at the rate of 47 tons per man per day, in place of 12 1/2 tons, at which rate the work was then being done. And it was further our duty to see that this work was done without bringing on a strike among the men, without any quarrel with the men, and to see that the men were happier and better contented when loading at the new rate of 47 tons than they were when loading at the old rate of 12 1/2 tons.

Our first step was the scientific selection of the workman. In dealing with workmen under this type of management, it is an inflexible rule to talk to and deal with only one man at a time, since each workman has his own special abilities and limitations, and since we are not dealing with men in masses, but are trying to develop each individual man to his highest state of efficiency and prosperity. Our first step was to find the proper workman to begin with. We therefore carefully watched and studied these 75 men for three or four days, at the end of which time we had picked out four men who appeared to be physically able to handle pig iron at the rate of 47 tons per day. A careful study was then made of each of these men. We looked up their history as far back as practicable and thorough inquiries were made as to the character, habits, and the ambition of each of them. Finally we selected one from among the four as the most likely man to start with. He was a little Pennsylvania Dutchman who had been observed to trot back home for a mile or so after his work in the evening about as fresh as he was when he came trotting down to work in the morning. We found that upon wages of $1.15 a day he had succeeded in buying a small plot of ground, and that he was engaged in putting up the walls of a little house for himself in the morning before starting to work and at night after leaving. He also had the reputation of being exceedingly "close," that is, of placing a very high value on a dollar. As one man whom we talked to about him said, "A penny looks about the size of a cart wheel to him." This man we will call Schmidt.

The task before us, then, narrowed itself down to getting Schmidt to handle 47 tons of pig iron per day and making him glad to do it. This was done as follows. Schmidt was called out from among the gang of pig iron handlers and talked to somewhat in this way:

> Schmidt, are you a high-priced man?
>
> Vell, I don't know vat you mean.
>
> Oh, yes, you do. What I want to know is whether you are a high-priced man or not.
>
> Vell, I don't know vat you mean.
>
> Oh, come now, you answer my questions. What I want to find out is whether you

are a high-priced man or one of these cheap fellows here. What I want to find out is whether you want to earn $1.85 a day or you are satisfied with $1.15, just the same as all these cheap fellows are getting.

Did I vant $1.85 a day? Vas dot a high-priced man? Vell, yes I vas a high-priced man.

Oh, you're aggravating me. Of course you want $1.85 a day—every one wants it! You know perfectly well that that has very little to do with your being a high-priced man. For goodness sake answer my questions, and don't waste any more of my time. Now come over here. You see that pile of pig iron?

Yes.

You see that car?

Yes.

Well, if you are a high-priced man, you will load that pig iron on that car tomorrow for $1.85. Now do wake up and answer my question. Tell me whether you are a high-priced man or not.

Vell—did I got $1.85 for loading dot pig iron on dot car tomorrow?

Yes, of course you do, and you get $1.85 for loading a pile like that every day right through the year. That is what a high-priced man does, and you know it just as well as I do.

Vell, dot's all right. I could load dot pig iron on the car tomorrow for $1.85, and I get it every day, don't I?

Certainly you do—certainly you do.

Vell, den, I vas a high-priced man.

Now, hold on, hold on. You know just as well as I do that a high-priced man has to do exactly as he's told from morning till night. You have seen this man here before, haven't you?

No, I never saw him.

Well, if you are a high-priced man, you will do exactly as this man tells you tomorrow, from morning till night. When he tells you to pick up a pig and walk, you pick it up and you walk, and when he tells you to sit down and rest, you sit down, and you don't talk back at him. Now you come on to work here tomorrow morning and I'll know before night whether you are really a high-priced man or not.

This seems to be rather rough talk. And indeed it would be if applied to an educated mechanic or even an intelligent laborer. With a man of the mentally sluggish type of Schmidt it is appropriate and not unkind, since it is effective in fixing his attention on the high wages which he wants and away from what, if it were called to his attention, he probably would consider impossibly hard work.

What would Schmidt's answer be if he were talked to in a manner which is usual under the management of "initiative and incentive?" Say, as follows:

Now, Schmidt, you are a first-class pig iron handler and know your business well. You have been handling at the rate of 12 1/2 tons per day. I have given considerable study to handling pig iron, and feel sure that you could do a much larger day's work than you have been doing. Don't you think that if you really tried you could handle 47 tons of pig iron per day, instead of 12 1/2 tons?

What do you think Schmidt's answer would be to this?

Schmidt started to work, and all day long, and at regular intervals, was told by the man who stood over him with a watch, "Now pick up a pig and walk. Now sit down and rest. Now walk, now rest," etc. He worked when he was told to work, and rested when he was told to rest, and at half-past five in the afternoon had his 47 1/2 tons loaded on the car. And he practically never failed to work at this pace and do the task that was set him during the three years that the writer was at Bethlehem. And throughout this time he averaged a little more than $1.85 per day, whereas before he had never received over $1.15 per day, which was the ruling rate of wages at that time in Bethlehem. That is, he received 60 per cent higher wages than were paid to other men who were not working on task work. One man after another was picked out and trained to handle pig iron at the rate of 47 1/2 tons per day until all of the pig iron was handled at this rate, and the men were receiving 60 per cent more wages than other workmen around them.[26]

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[26] Taylor, *Principles of Scientific Management,* p. 41, ff.

Kannan*

I WAS 27 years old when I finally decided on a career as a professional manager. Everyone thinks that I was late in choosing my vocation. It may seem so, but then, I think, I was not late in choosing my career. The fact is that I acted very late. What I mean is that I had always wanted to be an administrator but never really tried to achieve it before. How is it that I knew that I wanted to be and yet never tried to *be*? To answer, this, I think, I would have to go back to the earlier years of my life, the environment in which I was brought up, the people who influenced my life and development, the significant events and stories and fantasies closest to my heart.

The man who has most influenced my life is my father. He is responsible perhaps for what I am—good and bad. But let me introduce him first.

My father is a doctor, son of a poor postmaster, sixth among thirteen children (nine died in their teens). He was the first in the family to get higher education. He was very intelligent and hard working and did extremely well in medical studies (all these facts I came to know in the later part of my life). When I was born, he was just a medical officer in a coffee plantation, but in a short period he became a successful and

*This case, Kannan, was prepared by Professor Sudhir Kakar of the Indian Institute of Management, Ahmedabad, based on a student report, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1969, Indian Institute of Management, Ahmedabad. Used by specific permission.

a highly respected man in that region. He was very proud of being a self-made man and he believed that the key to his success was education. Education was his first religion and he was fanatic about it. He literally hated anybody who did not care for education. Naturally, he wanted his children to be highly educated.

We were four brothers and three sisters. I was fourth in order of birth. My relations with my father in my childhood and even in college days were unhappy. I cannot remember a single day when I was not afraid of him, afraid of being abused, beaten or caned. These were his usual ways of forcing us to study all the time. We were not allowed to play except in the evening for an hour. He would not allow anybody to go to sleep even at one o'clock at night if we could not satisfy him with the answers for the questions he asked. He made us sit and read until he was satisfied. My father taught us because there was no school in the plantation. The nearest school was 21miles away. He could not afford to keep us in a hostel.

When I was 10 years old my father got a big raise in salary and then he sent all of us (five at that time) to the town. He built a house taking a loan from the company and sent our mother also to stay with us because we could not take care of ourselves.

I divide my life in four distinct stages as follows :

1. up to 10 year (in direct contact with father)
2. 10-15 years (in town, in partial contact with father)
3. 15-20 years (college years—semi-independence period)
4. 20-27 years (working period—full independence)

STAGE I

I hated my father every day until I was 15. Then I just ignored him. Up to the age of 10 I studied under him and most of the time I studied just to satisfy him. I never thought I was doing something for myself. There was no incentive, no motivation. I studied just to avoid physical torture. Sometime the physical harassment used to become so unbearable that I often promised to leave the house for good whatever might happen. I used to dream of various methods to take revenge on him, but unfortunately I could do nothing. I felt frustrated and this became so chronic that in my later life I could never get rid of it.

As I have said earlier, from my childhood onwards I lost interest in studying because there was no motivation. I studied only to satisfy my father but because of his oppression I always dreamed to be someone who would boss over other people. I think this was my first step in choosing my vocation.

One day an event happened which has had a great influence on my choosing a career. I saw my father very busy and a little nervous. Unlike other days he did not give us usual instructions about studying. He was very busy in getting himself properly dressed. He ordered mother to hurry up in serving breakfast because he wanted to go to the hospital very early that day. Ultimately he went out of the house but came back midway. He had forgotten to take his bag and some files and told mother that he was nervous and that he wished the day would pass smoothly. After he had gone, I asked my mother what had happened to father today. She said that a big officer from the head office of the company was coming today to visit the hospital and added that father's job and promotion depended very much on him. I got the surprise of my life ! So there was somebody in this world whom even my father was afraid of ! This is where my day dreaming of being a powerful someone started. At that time I was not clear what being a big officer actually meant or what he did, but I always visualised myself sitting on a high chair giving orders to various people and deriving immense pleasure out of it.

At that moment I did not know that another shock was waiting for me. The shock came when I discovered my father as a "loving" father who was really concerned for the well being of his children. I was down with jaundice for nearly six months. He ordered me not to study but to rest only. Special food was prepared for me. I saw my father really concerned about me. I saw him coming at night and putting his fingers on my forehead and sometimes passing the rest of the night sitting by my bed side. Occasionally he used to smile at me (not a usual thing with him) and asked how I felt. That was the best period of my earlier life, but unfortunately it was short lived. As soon as I recovered fully, he again started behaving as earlier and this started a conflict in me. On the one hand I wanted to take revenge on him; on the other hand, I hesitated to think badly about him because of his behaviour during the period I was sick. I think this confusion has haunted me throughout my life. We will see later that most of my activities were centred around either taking revenge on my father or pleasing him.

At the insistence of my mother I began reading *Ramayana* and *Mahabharata* and subsequently became so interested in them that I read them again and again. As a child I was most influenced by Hanumanji in *Ramayana*. I always wanted to be like him, a miracle worker who could cross the sea in one jump, burn the whole kingdom of Ravana by the fire of his tail, and who could make himself bigger and bigger or smaller and smaller in Lanka, but I was unhappy that he did not take Sita along with him. I still do not understand why Hanumanji who can carry a mountain on his shoulder and can cross the sea in one jump, did not take Sita along with him. What made him like that ?

Is there something which even Hanumanji cannot perform ? At that time I consoled myself by telling myself that there was something which could not be done even by Hanumanji. But this compromising attitude, or the attitude of taking things as they happen greatly influenced my behaviour. Many times I did not try to do certain things thinking that these could not be done by me. For example, I never appeared for the I.A.S. examination even though I wanted to be an administrator because I had the feeling that I wouldn't make it.

I would like to mention a fantasy I often used to dream of and perhaps still do to a lesser degree. In this I would see myself as a miracle worker who comes or appears at the right place and at the right moment to save somebody from distress. I have always wished to have supernatural powers by which I can do anything I like. The origins of this fantasy are from sroies like *Aladin and the Lamp*, the detective stories and adventures, etc., besides *Ramayana* and *Mahabharata*. Though unfortunately I did not get any supernatural powers, the idea has definitely had some influence on choosing my career. Because of my love for this fantasy, I always wanted to do something new which nobody had ever done before. So when my father asked me what I would do after Intermediate, Engineering or Medicine, I told him I would do none of these because my elder brother was already studying engineering and my father himself was a doctor. I thought it not at all exciting to go into lines which had already been taken by others. But I also did not know of anything new which would make me a "big officer" of my childhood dreams. I shall come back to this part of my life later.

STAGE II

The second stage of my life started when we moved to town for schooling with our mother. I entered into the second stage at the age of ten as a boy who is nervous and without confidence and with an inferiority complex because of his father's dominance, at the same time I was a boy who in his own world is a hero and who performs miracles. Moreover, he is the victim of conflict between the opposing sentiments—one is his hate for his father and the other his love(?) for his "loving father" by the side of his sick bed.

Till now I have not mentioned my mother because her role was not very significant. My mother was always at the back of the stage because our worlds had been revolving so afar around our father's wishes. But when we moved into town with our mother, she started playing a very important role which eventually influenced my behaviour.

My mother, unlike my father, is a very kind woman who is always ready to comply with the wishes of her children, but till now she had not done so because of our father. But in the town she gave us greater freedom. We had more time to play, and we could go to sleep as soon as we thought we had finished studying for the next day's class. We had another advantage also. My mother, having very little education (she knows only how to read and write) could not judge whether or not we were studying properly. Perhaps this sudden flexibility and freedom were too much for me. I lost my balance and gradually started giving less attention to studies. I found a great relief in not studying. I used to play more and more and go to sleep earlier and earlier. But mother could not contain herself much longer. She complained to father when he came to visit us (he used to come every Saturday and leave on Monday morning). The result was obvious. I was severely punished which only strengthened my determination not to study. I tried to find a way to bluff my mother. Ultimately I found one. I had developed a very keen interest in reading story books of any kind, good or bad. In fact, I became a voracious reader, devouring everything which came in my way. But unfortunately this habit of mine, I think, did not do me good in the long run because I could never retain anything I read. I read only for the sake of reading. I still do this.

However, to bluff my mother I used to read those story books instead of school books and kept myself awake late at night. My mother, unable to distinguish between school books and story books, thought that I had become very studious and she was happy. But this victory of mine only led me to other mischiefs. I developed a liking for movies and I started stealing money for this. I also started stealing money to buy story books because I found immense pleasure in buying and reading new books. In fact most of my time after school was spent in play grounds, cinema houses, libraries and various book shops. I think I should tell how I managed to have money—in a sense it was stealing. We did not have a servant. So my mother used to give me the responsibility of the daily buying of vegetables, etc. To get money, either I lied to her about the quantity I purchased or about the price of the commodities. Because of the continuous success of my lying I became bolder and bolder and also developed ways of ignoring my father.

At first I rebelled very mildly against any wishes of my father and later on much more strongly. My father wanted me to be a doctor. I refused to be one because he wanted it. Had he not proposed it, I might have gone in for medicine—I do not know for sure. In spite of all this, I did very well in school examinations. My rank in class was always third or fourth from the top. That gave me a sense of overconfidence. I thought myself to be a very brilliant boy, who, without much studying, can do very well in examinations. In later life I suffered for this. I failed in Intermediate once and once too in B. Sc. I still possess this over-confidence but to a lesser degree and with much more understanding of my limitations. Along with this, I became the victim of feelings of guilt. These guilty feelings have been haunting me throughout and because of these I developed a passiveness and an indifference towards my career. I had the feeling "let whatever has to happen, happen. Why bother, I am no good."

When I failed in B. Sc. because of my negligence and over-confidence, I was totally dejected. Next year I just managed to pass but could not get admission in the university for M.Sc. After that I just did not bother about my career for the next six years. It was after six years that I felt the urgency of studying again. Why I felt this urgency is another story. I shall discuss it later.

These guilty feelings were accentuated by another habit of mine, the habit of masturbation. A friend of mine not only taught me about masturbation but also told me a lot about the man and woman relationship and intercourse. For some time I was quite happy with my new habit and practised it quite excessively. But then I developed a guilt feeling about it primarily because of two reasons. First, I got the impression (I do not remember the source) that it is a vice not to be practised, that it is a sin of "loose character," At that time, by "loose" character I understood "bad boys" who failed again and again in the same class, who fooled around the town and went to every movie. Second, that it is detrimental to health and something to do with the losing of "manhood" though I did not understand at that time what "manhood" really meant.

One day my mother saw me masturbating in bed though she pretended she did not see anything. I got a jolt out of this incident. I felt extremely ashamed and I felt that my mother won't think of me as a "good boy." After that incident I tried to get rid of this habit but in vain. After sometime I stopped trying to stop it and accepted this habit as being inevitable. The net effect was loss of self-confidence but this phase was temporary, and I could not shake off the over-confidence described earlier. Perhaps I consoled myself by saying that there are certain things which even Hanumanji could not do.

I remember two incidents which have some bearing on my career. A contest was held among all the school children of the whole district (there were about 100 schools in the district) to test their general knowledge. I stood first. This not only boosted my confidence but also gained admiration from my parents, friends and neighbours. My parents started treating me a little differently, especially my father who drastically reduced his interference with my studies. In fact I was allowed to study as I felt best. This behaviour of my parents led me to think deeply. I thought that only by achieving something outstanding, I would be able to satisfy my parents and by this I would gain independence. I resolved to do something in my life which no one had ever done in my family but did not know what this could be. Because of this incident my hunger for recognition increased.

The second incident relates to the encouragement I got from my mother. She used to tell us stories about a Divisional Commissioner under whom her father had worked. Her father used to tell her about his boss which greatly impressed her. She enthusiastically used to narrate to us how powerful the Commissioner was, how each and every man in the district respected him, and how he could exercise his authority. One day, while talking about him, she told me, "Kannan, I wish you could become a big officer like him." The way she said that and looked at me, I had to promise to be like him. I thought a negative sign from me would break her heart. Though for the moment I had promised only to satisfy my mother, yet the more I thought about it, the more I was thrilled to think that my mother also wanted me to be a big officer which I had always wanted to be. I decided to be a big officer (I still did not have an idea how and what made a big officer) to satisfy her and to compensate for the crime I had been committing by lying to her and stealing her money.

STAGE III

At the age of fourteen and a half, I passed matriculation in high second division. That year the examination was especially tough and no one from my school got a first division. So my self-confidence was not badly shaken. I took it casually. My father wanted me to study in the local college but I insisted on going to Madras. I just wanted to get out of his sight, and moreover, I would be given money for pocket expenses if I stayed outside which so far had been denied to me. At last he consented, and I was sent to Madras to live in a college hostel. I completely lost my head at seeing Madras's size. I came from a small town with limited ideas and here were so many things to enjoy. I just submerged myself in enjoyment. I started going to movies very frequently, fooled around the city with friends and went to big restaurants. In fact, I did not know what to do with my independence. There was no one to restrict my movements and there was money to spend. I neglected studies and forgot all about my aspirations to be a big officer and started over-spending. I became irresponsible.

The reason for this irresponsibility can perhaps be explained as follows. From my very childhood I had not been given any responsibility. I was not allowed to do anything on my own except in the last year of my school days. I was never allowed to take any decisions. There was constant interference by my father in all my activities. My father had always decided what I should do, which I had resented from the core of my heart. So when I came out of my father's control and became semi-independent (still dependent for money) I started doing everything that I wanted to do and he did not. Relations with my father became strained because of my spending habits. I overspent and did not pay the fees of the hostel. The hostel superintendent wrote to my father and my father, as a retaliatory measure, reduced my allowance for the next month, which made me furious and my hatred for my father came back strongly. I completely neglected my studies. Perhaps I wanted to take revenge on my father. Perhaps I wanted to teach him a lesson by not studying. This was a kind of revolt, but I did not understand that I was only hurting myself. The result was obvious—I failed in I.Sc. I remember the day when the results were out. I was home at that time. All of us were waiting for the newspaper to come. Ultimately the paper came and my roll number was not there. I started crying, but to my surprise I saw my father also crying—very silently. I did not understand at that moment what this crying was for.

A few days later my mother told me how shocked my father was to see my result. He had had high hopes about me in spite of all my faults. She also told me that of all the brothers he loved me the most and expected much from me. I was simply shocked to hear all this. I had always thought my father to be something different. It changed my mental attitude towards my father a little and I decided to work hard the next year and I did. Next year I passed the I.Sc. in the first division. After that, my father wanted me to go in either for engineering or medicine. I liked none of these for the reasons described earlier. Moreover at this moment I was under the influence of one of my best friends, Ramesh. I told him that I wanted to do something new. He advised me to study statistics.

Incidentally, it should be remembered that this time it was a craze for the boys (and their parents) to go for engineering studies. Ramesh also took statistics, but then he was a brilliant student and got a first class. On the other hand, I found the subject very difficult and got frustrated. My old attitude came back. I just thoght that this subject is beyond my capacities and never tried to learn it. Now I believe, had I tried, the course of my career may have been different. At that moment frustration had virtually crippled me. I again started going to movies frequently which ultimately became an addiction.

In the meantime my sex life dominated the scene. My friendship with a girl grew thicker. I thought I was in love. I always wanted to be near her but she did not love me. Her refusal made me dejected and so depressed that I could not concentrate on studies. When I came back to my senses it was too late. I failed in B.Sc. After that my father completely stopped advising me and became indifferent toward me. My sisters and brothers looked down on me. Everyone lost hope and treated me as a spoilt child. Surprisingly, I was still very confident and believed that some day I would be a big man. I just ignored everyone and concentrated on studies. Next year I passed B.Sc. but my results were not good. I did not get admission to the M.Sc. My high hopes of being big ended abruptly and for the first time I doubted myself.

One thing still surprises me. I resented my father who attempted to control or interfere in my affairs. Then why did I feel hurt when he stopped worrying about me ? His ignoring definitely hurt me but why should it have done so when I was to be blamed for what I was, and when I wanted no one to pry into my affairs ? I do not know the answer, but I definitely felt hurt at my father's indifference. Was it because my father was closest to me and I did not know it ? Was it because subconsciously I had always wanted to depend on my father ? Or was it because I felt lonely and afraid when my father stopped taking interest in me ? Or was it because for the first time I doubted my confidence ? Or was it because for the first time I felt that I was to be blamed and I wanted sympathy and no one gave it ? It may be a combination of all these, but I was sure I wanted someone to share my agony, and now, as I can see, I wanted most of all, that my father should come forward. But I do not blame him. Perhaps in his position I would have done the same thing.

Thus, at the age of 21, I emerged as a young man of shaky confidence, a young man who was nervous and afraid, yet arrogant and defiant, a young man with an unimpressive educational career who now needed sympathy and guidance. But none was forthcoming and I took it for granted that none would come. For the first time I realised that from now on I had to go it all alone. To my happy surprise, for the first time I also felt really independent. As a first step I decided not to take money from my father and took up a job at a salary of only Rs. 140. I became a clerk ! Irony of fate—once I had wanted to be a big officer !

I did a good job as a clerk and gained recognition from my superiors and colleagues. I realised I was not finished yet. It was still not too late. At this moment, one of my distant maternal uncles entered into my life. He gave me back the confidence I had lost. He told me his own story. He was only a matriculate, but by sheer perseverance and hard work he had reached a high position in his company. He advised me strongly to become a salesman. I applied for a job as a medical representative in an internationally reputed pharmaceutical company. There was no specific reason why I applied for a post of medical representative when previously I had refused to be in the medical line. The fact is that it was the first advertisement I saw and I applied. Out of nearly 150 persons, four were selected. Not only was I selected but I was also the best.

This incident boosted my ego to a very high extent. On top of it, an income of Rs. 1000 per month! It put me on top of the world. In fact this incident transformed my whole attitude towards life and the world. I refused to think of myself as a useless person. I became tolerant. I started listening to people and understanding their feelings. After all, a salesman's job is nothing but understanding people. I firmly believe that had I not got this job, had I not become a salesman, I would have spent my life as an ordinary clerk. Unfortunately, my father did not like my becoming a medical representative. After all, I was just a salesman whatever my income might be, and to him sales people are of a lower status. I resented my father's feelings and thought him old fashioned. But afterwards I realised that my father was right and that our society does not consider a salesman as a member of the high status groups. Even today, people do not consider a salesman, however successful or efficient he may be in his profession, as an equal to an engineer or a doctor.

In spite of my protests the company sent me to work in my home district. I refused to go there mainly because I would have to come in contact with my father which I did not want. However, I did go and enjoyed my work there. It is a remarkable experience to be a salesman. The feeling of convincing someone of one's product is well rewarded by the satisfaction of achieving something apart from the monetary reward. It increases self-confidence and self-respect. Exactly this happened to me. I felt like a man and walked like one. As I said earlier, because of my increasing understanding of other people, I saw everything in a new light. I realised that though my father was harsh and over-demanding, he did it only for my benefit. This realisation softened my attitude toward him and I wanted a reconciliation. There was something common between us since I was a medical representative and he was a doctor. Gradually, I started discussing the various medicines with him, of which, by this time, I had gathered a considerable knowledge.

At first he was not very enthusiastic but finally he started teaching me about medicines which greatly helped me in my job. What a difference between the two images of my father as my teacher! One as a merciless teacher in my childhood, and now another as an understanding and sympathetic one. Had he been soft and understanding in my childhood, I would have become a doctor like him instead of a medical representative. But I do not resent him any longer because I know him better. He has also changed. Perhaps he became understanding because it begot a warm response from his children, a fact which he had not previously realised. Once the good relationship was estblished between us, he started worrying again about my career but in a different manner. He gave me enough indication in different ways that he was not satisfied with my low qualifications. He wanted me to study further. Once he even told me to leave the job and to go for higher studies if possible. He was ready to spend the money. But I did not comply with his request because of various reasons. I had aready become accustomed to spending about Rs. 1,000 per month and I did not feel like going back to a stage where every moment I would have to think about money. Second, I was really enjoying the soft life. I did not feel like going back to the hard life of a student. Third, I had doubts whether I would be able to concentrate on studies. Fourth, I did not feel a real need for higher education at that time, and fifth, I did not want to be dependent on my father again. But to satisfy my father I decided to do cost accountancy though I did not have a real interest in it. After a few months I gave it up.

Now an incident happened which completely shook me. "Town Club" was considered the most sophisticated club in the town, its members being the elite of the town. I decided to join it because I thought it would give me more social status and without it my social acceptance in the town would not be complete. So I applied but was refused admission. The reason given by the secretary shocked me. He said that the club was anxious to keep up its standards. Money was not the criteria of admission. Members should be either highly qualified or big officers and I satisfied neither of the criteria. I felt very low and ashamed. Never before in my life had I felt so insulted. My heart still burns at the thought of it. I think it was a necessary shock. I realised my inadequacy but I did not know what to do. How could I improve my education ? I could not go into engineering or medicine, but I realised I had to have some higher education.

Another incident strengthened this urgency of my desire for more education. My company being a very conservative one, offered very little scope for advancement. I did not see any prospects of advancement in 10 years. But I wanted to move faster and the only way out was to equip myself with more education which would open up better prospects for me. As I wanted to become an executive (in the mean time I had chosen my vocation and decided firmly to be an executive), I started looking for an education which would not only give me professional competence but also lead to an executive job. After all, I had already completed 26 years and was going to be 27 very soon, and I was already late in becoming what I had always wanted to be —an executive, a big officer.

Till now I had not been conscious about my status in the family.

I found that I had no status at all in comparison to my brothers. My eldest brother had already become a highly qualified engineer. My younger brother had got his M.B.B.S. degree and was specializing in surgery. My youngest brother had got admission into I.I.T. I bitterly felt this difference. For all practical purposes I was non-existent in the family. There was no way out for me but to have a higher education.

In the meantime my father started searching for a girl so as to get me married but could not find a suitable match. He often hinted to me that proposals from better girls were not forthcoming because of my low education and ordinary job. He said he did not find any difficulty in getting a good girl for my elder brother. I understood his hints and knew that he was right. What a mess I had made out of my life ! I had to get out of the rut and did not know what to do. At last it came. I saw the advertisement of the Indian Institute of Management and I knew this was it. Surprisingly I had overlooked it for the last three years. Perhaps I was too pre-occupied with other things. As soon as I saw the advertisement I decided what to do. I knew my life was on a threshold—on one side admission to the Institute and a bright future, and on the other hand a dark, vacant life. I applied and prayed to God. I got admission and what a difference it made ! At last I was on the road to a career that I had always wanted !

PART THREE

Understanding Two-Person Relationships

ROGERS AND ROETHLISBERGER

Barriers and Gateways to Communication

ZALEZNIK

The Dynamics of Subordinacy

ANDERSON

Giving and Receiving Feedback

READINGS

CARL R. ROGERS AND
F. J. ROETHLISBERGER

Barriers and Gateways to Communication*

PART I

It may seem curious that a person like myself, whose whole professional effort is devoted to psychotherapy, should be interested in problems of communication. What relationship is there between obstacles to communication and providing therapeutic help to individuals with emotional maladjustments ?

Actually the relationship is very close indeed. The whole task of psychotherapy is the task of dealing with a failure in communication. The emotionally maladjusted person, the "neurotic", is in dfficulty, first because communication within himself has broken down and, secondly, because as a result of this his communication with others has been damaged. To put it another way, in the "neurotic" individual parts of himself which have been termed unconscious, or repressed, or denied to awareness, become blocked off so that they no longer communicate themselves to the conscious or managing part of himself; as long as this is true, there are distortions in the way he communicates himself to others, and so he suffers both within himself and in his interpresonal relations.

The task of psychotherapy is to help the person achieve, through

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a special relationship with a therapist, good communication within himself. Once this is achieved, he can communicate more freely and more effectively with others. We may say then that psychotherapy is good communication, within and between men. We may also turn that statement around and it will still be true. Good communication, free communication, within or between men, is always therapeutic.

It is, then, from a background of experience with communication in counselling and psychotherapy that I want to present two ideas: (1) I wish to state what I believe is one of the major factors in blocking or impeding communication, and then (2) I wish to present what in our experience has proved to be a very important way of improving or facilitating communication.

BARRIER: THE TENDENCY TO EVALUATE

I should like to propose, as a hypothesis for consideration, that the major barrier to mutual interpersonal communication is our very natural tendency to judge, to evaluate, to approve (or disapprove) the statement of the other person or the other group. Let me illustrate my meaning with some very simple example. Suppose someone, commenting on this discussion, makes the statement, "I didn't like what that man said." What will you respond ? Almost invariably your reply will be either approval or disapproval of the attitude expressed. Either you respond, "I didn't either; I thought it was terrible," or else you tend to reply, "Oh, I thought it was really good." In other words, your primary reaction is to evaluate it from *your* point of view, your own frame of reference.

Or take another example. Suppose I say with some feeling, "I think the Republicans are behaving in ways that show a lot of good sound sense these days." What is the response that arises in your mind ? The overwhelming likelihood is that it will be evaluative. In other words, you will find yourself agreeing, or disagreeing, or making some judgment about me such as "He must be a conservative," or "He seems solid in his thinking." Or let us take an illustration from the international scene. Russia says vehemently, "The treaty with Japan is a war plot on the part of the United States." We rise as one person to say, "That's a lie !"

This last illustration brings in another element connected with my hypothesis. Although the tendency to make evaluations is common in almost all interchange of language, it is very much heightened in those situations where feelings and emotions are deeply involved. So the stronger our feelings, the more likely it is that there will be no mutual element in the communication. There will be just two ideas, two feelings, two judgments, missing each other in psychological space.

I am sure you recognize this from your own experience. When you have not been emotionally involved yourself and have listened to a heated discussion, you often go away thinking, "Well, they actually weren't talking about the same thing." And they were not. Each was making a judgment, an evaluation, from his own frame of reference. There was really nothing which could be called communication in any genuine sense. This tendency to react to any emotionally meaningful statement by forming an evaluation of it from our own point of view is, I repeat, the major barrier to interpersonal communication.

GATEWAY: LISTENING WITH UNDERSTANDING

Is there any way of solving this problem, of avoiding this barrier ? I feel that we are making exciting progress toward this goal, and I should like to present it as simply as I can. Real communication occurs, and this evaluative tendency is avoided, when we listen with understanding. What does that mean ? It means to see the expressed idea and attitude from the other person's point of view, to sense how it feels to him, to achieve his frame of reference in regard to the thing he is talking about.

Stated so briefly, this may sound absurdly simple, but it is not. It is an approach which we have found extremely potent in the field of psychotherapy. It is the most effective agent we know for altering the basic personality structure of an individual and for improving his relationships and his communications with others. If I can listen to what he can tell me, if I can understand how it seems to him, if I can see its personal meaning for him, if I can sense the emotional flavor which it has for him, then I will be releasing potent forces of change in him.

Again, if I can really undestand how he hates his father, or hates the company, or hates Communists—if I can catch the flavour of his fear of insanity, or his fear of atom bombs, or of Russia—it will be of the greatest help to him in altering those hatreds and fears and in establishing realistic and harmonious relationships with the very people and situations toward which he has felt hatred and fear. We know from our research that such empathic understanding—understanding *with* a person, not *about* him—is such an effective approach that it can bring about major changes in personality.

Some of you may be feeling that you listen well to people and yet you have never seen such results. The chances are great indeed that your listening has not been of the type I have described. Fortunately, I can suggest a little laboratory experiment which you can try to test the quality of your understanding. The next time you get into an argument with your wife, or your friend, or with a small group of friends, just stop the discussion for a moment and, for an experiement, institute this rule: "Each person can speak up for himself only *after* he has first restated the ideas and feelings of the previous speaker accurately and to that speaker's satisfaction."

You see what this would mean. It would simply mean that before presenting your own point of view, it would be necessary for you to achieve the other speaker's frame of reference—to understand his thoughts and feelings, so well that you could summarize them for him. Sounds simple, doesn't it? But if you try it, you will discover that it is one of the most difficult things you have ever tried to do. However once you have been able to see the other's point of view, your own comments will have to be drastically revised. You will also find the emotion going out of the discussion, the differences being reduced, and those differences which remain being of a rational and understandable sort.

Can you imagine what this kind of an approach would mean if it were projected into larger areas? What would happen to a labor-management dispute if it were conducted in such a way that labor, without necessarily agreeing, could accurately state management's point of view in a way that management could accept; and management, without approving labor's stand, could state labor's case in a way that labor agreed was accurate? It would mean that real communication was established, and one could practically guarantee that some reasonable solution would be reached.

If, then, this way of approach is an effective avenue to good communication and good relationship, as I am quite sure you will agree if you try the experiment I have mentioned, why is it not more widely tried and used? I will try to list the difficulties which keep it from being utilized.

NEED FOR COURAGE

In the first place it takes courage, a quality which is not too widespread. I am indebted to Dr. S. I. Hayakawa, the semanticist, for pointing out that to carry on psychotherapy in this fashion is to take a very real risk, and that courage is required. If you really understand another person in this way, if you are willing to enter his private world and see the way life appears to him, without any attempt to make evaluative judgments, you run the risk of being changed yourself. You might see it his way; you might find yourself influenced in your attitudes or your personality.

This risk of being changed is one of the most frightening prospects many of us can face. If I enter, as fully as I am able, into the private world of a neurotic or psychotic individual, isn't there a risk that I might become lost in that world? Most of us are afraid to take that risk. Or if we were listening to a Russian Communist, or Senator Joe McCarthy how many of us would dare to try to see the world from each of their points of view? The great majority of us could not *listen*; we would find ourselves compelled to *evaluate*, because listening woud seem too dangerous. So the first requirement is courage, and we do not always have it.

HEIGHTENED EMOTIONS

But there is a second obstacle. It is just when emotions are strongest that it is most difficult to achieve the frame of reference of the other person or group. Yet it is then that the attitude is most needed if communication is to be established. We have not found this to be an insuperable obstacle in our experience in psychotherapy. A third party, who is able to lay aside his own feelings and evaluations, can assist greatly by listening with understanding to each person or group and clarifying the views and attitudes each holds.

We have found this effective in small groups in which contradictory or antagonistic attitudes exist. When the parties to a dispute realise that they are being understood, that someone sees how the situation seems to them, the statements grow less exaggerated and less defensive, and it is no longer necessary to maintain the attitude, "I am 100% right and you are 100% wrong." The influence of such an understanding catalyst in the group permits the members to come closer and closer to the objective truth involved in the relationship. In this way mutual communication is established, and some type of agreement becomes much more possible.

So we may say that though heightened emotions make it much more difficult to understand *with* an opponent, our experience makes it clear that a neutral, understanding, catalyst type of leader or therapist can overcome this obstacle in a small group.

SIZE OF GROUP

That last phrase, however, suggests another obstacle to utilizing the approach I have described. Thus far all our experience has been with small face-to-face groups—groups exhibiting industrial tensions, religious tensions, racial tensions, and therapy groups in which many personal tensions are present. In these small groups our experience, confirmed by a limited amount of research, shows that this basic approach leads to improved communication, to greater acceptance of others and by others, and to attitudes which are more positive and more problem-solving in nature. There is a decrease in defensiveness, in exaggerated statements, in evaluative and critical behaviour.

But these findings are from small groups. What about trying to achieve understanding between larger groups that are geographically remote, or between face-to-face groups that are not speaking for themselves but simply as representatives of others, like the delegates at Kaesong ? Frankly we do not know the answers to these questions. I believe the situation might be put this way: As social scientists we have a tentative test-tube solution of the problem of breakdown in communication. But to confirm the validity of this test-tube solution and to adapt it to the enormous problems of communication breakdown between classes, groups and nations would involve additional funds, much more research, and creative thinking of a high order.

Yet with our present limited knowledge we can see some steps which might be taken even in large groups to increase the amount of listening *with* and decrease the amount of evaluation *about*. To be imaginative for a moment, let us suppose that a therapeutically oriented international groups went to the Russian leaders and said, "we want to achieve a genuine understanding of your views and, even more important, of your attitudes and feelings toward the United States. We will summarize and resummarize these views and feelings if necessary, until you agree that our description represents the situation as it seems to you."

Then suppose they did the same thing with the leaders in our own country. If they then gave the widest possible distribution to these two views, with the feelings clearly described but not expressed in name-calling, might not the effect be very great ? It would not guarantee the type of understanding I have been describing, but it would make it much more possible. We can understand the feelings of a person who hates us much more readily when his attitudes are accurately described to us by a neutral third party than we can when he is shaking his fist at us.

FAITH IN SOCIAL SCIENCES

But even to describe such a first step is to suggest another obstacle to this approach of understanding. Our civilization does not yet have enough faith in the social sciences to utilize their findings. The opposite is true of the physical sciences. During the war when a test-tube solution was found to the problem of synthetic rubber, millions of dollars and an army of talent were turned loose on the problem of using that finding. If synthetic rubber could be made in milligrams, it could and would be made in thousands of tons. And it was. But in the social science realm, if a way is found of facilitating communication and mutual understanding in small groups, there is no guarantee that the finding will be utilized. It may be a generation or more before the money and the brains will be turned loose to exploit that finding.

SUMMARY

In closing, I should like to summarize this small-scale soulution to the problem of barriers in communication, and to point out certain of its characteristics.

I havesaid that our research and experience to date would make it appear that breakdown in communication, and the evaluative tendency which is the major barrier to communication, can be avoided. The solution is provided by creating a situation in which each of the different parties comes to understand the other from the *other's* point of view. This has been achieved, in practice, even when feelings run high by the influence of a person who is willing to understand each point of veiw emphatically, and who thus acts as a catalytst to precipitate further understanding.

This procedure has important characteristics. It can be iniiated by one party, without waiting for the other to be ready. It caneven be initiated by a neutral third person, provided he can gain a minmum cooperation from one of the parties.

This procedure can deal with the insincerities, the defensive exiggerations, the lies, the "false fronts" which characterise almost everya failure in communication. These defensive distortions drop away with astonishing speed as people find that the only intent is to understand not to judge.

This approach leads steadily and rapidly toward the discovery of the truth, toward a realistic appraisal of the objective barriers to communication. The dropping of some defensiveness by one party leads to further dropping of defensiveness by the other party, and truth is thus approached.

This procedure gradually achieves mutual communication. Mutual communication tends to be pointed toward solving a problem rather than toward attacking a person or group. It leads to a situation in which I see how the problem appears to you as well as to me, and you see how it appears to me as well as to you. Thus accurately and realistically defined, the problem is almost certain to yield to intelligent attack; or if it is in part insoluble, it will be comfortably accepted as such.

This then appears to be a test-tube solution to the breakdown of communication as it occurs in small groups. Can we take this small-scale answer, investigate it further, refine it, develop it, and apply it to the tragic and well-nigh fatal failures of communication which threaten the very existence of our modern world ? It seems to me that this is a possibility and a challenge which we should explore.

PART II*

IN THINKING about the many barriers to personal communication, particularly those that are due to differences of background, experience, and motivation, it seems to me extraordinary that any two persons can ever understand each other. Such reflections provoke the question of how communication is possible when people do not see and assume the same things and share the same values.

On this question there are two schools of thought. One school assumes that communication between A and B, for example, as failed when B does not accept what A has to say as being fact, true, or valid; and that the goal of communication is to get B to agree with A's opinions, ideas, facts, or information.

The position of the other school of thought is quite different. It assumes that communication has failed when B does not feel free to express his feelings to A because B fears they will not be accepted by A. Communication is facilitated when on the part of A or B or both there is willingness to express and accept differences.

As these are quite divergent conceptions, let us explore them further with an example. Bill, an employee, is talking with his boss in the boss's, office. The boss says, "I think, Bill, that this is the best way to do your job." Bill says, "Oh, yeah !" According to the first school of thought, this reply would be a sign of poor communication. To improve communication, therefore, it is up to the boss to explain to Bill why his way is the best.

From the point of view of the second school of thought, Bill's reply is a sign neither of good nor of bad communication. Bill's response is indeterminate. But the boss has an opportunity to find out what Bill means if he so desires. Let us assume that this is what he chooses to do, i.e., find out what Bill means. So this boss tries to get Bill to talk more about his job while he (the boss) listens.

For purposes of simplification, I shall call the boss representing the first school of thought "Smith" and the boss representing the second school of thought "Jones". In the presence of the so-called same stimulus each behaves differently. Smith chooses to *explain*; Jones chooses to *listen*. In my experience Jones' response works better than

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*AUTHOR'S NOTE: For the concepts I use to present my material I am greatly indebted to some very interesting conversations I have had with my friend, Irving Lee—F.J.R.

Smith's. It works better because Jones is making a more proper evaluation of what is taking place between him and Bill than Smith is. Let us test this hypothesis by cotinuing with our example.

WHAT SMITH ASSUMES, SEES, AND FEELS

Smith assumes that he understands what Bill means when Bill says, "Oh yeah" so there is no need to find out. Smith is sure that Bill does not understand why this is the best way to do his job, so Smith has to tell him. In this process let us assume Smith is logical, lucid, and clear. He presents his facts and evidence well. But, alas, Bill remains unconvinced. What does Smith do? Operating under the assumption that what is taking place between him and Bill is something essentially logical, Smith can draw only one of two conclusions: either (1) he has not been clear enough, or (2) Bill is too damand stupid to understand. So he either has to "spell out" his case in words of fewer and fewer syllables or give up. Smith is reluctant to do the latter, so he continues to explain. What happens?

If Bill still does not accept Smith's explanation of why this is the best way for him to do his job, a pattern of interacting feelings is produced of which Smith is often unaware. The more Smith cannot get Bill to understand him, the more frustrated Smith becomes and the more Bill becomes a threat to his logical capacity. Since Smith sees himself as a fairly reasonable and logical chap, this is a difficult feeling to accept. It is much easier for him to perceive Bill as uncooperative or stupid. This perception, however, will affect what Smith says and does. Under these pressures Bill comes to be evaluated more and more in terms of Smith's values. By this process Smith tends to treat Bill's values as unimportant. He tends to deny Bill's uniqueness and difference. He treats Bill as if he had little capacity for self-direction.

Let us be clear. Smith does not see that he is doing these things. When he is feverishly scratching hieroglyphics on the back of an envelope, trying to explain to Bill why this is the best way to do his job, Smith is trying to be helpful. He is a man of goodwill, and he wants to set Bill straight. This is the way Smith sees himself and his behavior. But it is for this very reason that Bill's "Oh yeah!" is getting under Smith's skin.

"How dumb can a guy be?" is Smith's attitude, and unfortunately Bill will hear that more than Smith's good intentions. Bill will feel misunderstood. He will not see Smith as a man of goodwill trying to be helpful. Rather he will perceive him as a threat to his self-esteem and personal integrity. Against this threat Bill will feel the need to defend himself at all cost. Not being so logically articulate as Smith, Bill expresses this need, again, by saying, "Oh yeah!"

WHAT JONES ASSUMES, SEES, AND FEELS

Let us leave this sad scene between Smith and Bill, which I fear is going to terminate by Bill's either leaving in a huff or being kicked out of Smith's office. Let us turn for a moment to Jones and see what he is assuming, seeing, hearing, feeling, doing, and saying when he interacts with Bill.

Jones, it will be remembered, does not assume that he knows what Bill means when he says, "Oh, yeah!" so he has to find out. Moreover, he assumes that when Bill said this, he had not exhausted his vocabulary or his feelings. Bill may not necessarily mean one thing; he may mean several different things. So Jones decides to listen.

In this process Jones is not under any illusion that what will take place will be eventually logical. Rather he is assuming that what takes place will be primarily an interaction of feelings. Therefore, he cannot ignore the feelings of Bill, the effect of Bill's feelings on him, or the effect of his feelings on Bill. In other words, he cannot ignore his relationship to Bill; he cannot assume that it will make no difference to what Bill will hear or accept.

Therefore, Jones will be paying strict attention to all of the things Smith has ignored. He will be addressing himself to Bill's feelings, his own, and the interactions between them.

Jones will therefore realize that he has ruffled Bill's feelings with his comment, "I think, Bill, this is the best way to do your job." So instead of trying to get Bill to understand him, he decided to try to understand Bill. He does this by encouraging Bill to speak. Instead of telling Bill how he should feel or think, he asks Bill such questions as, "Is this what you feel?" "Is this what you see?" "Is this what you assume?" Instead of ignoring Bill's evaluations as irrelevant, not valid, inconsequential, or false, he tries to understand Bill's reality as he feels it, perceives it, and assumes it to be. As Bill begins to open up, Jones' curiosity is piqued by this process.

"Bill isn't so dumb; he's quite an interesting guy" becomes Jones' attitude. And that is what Bill hears. Therefore Bill feels understood and accepted as a person. He becomes less defensive. He is in a better frame of mind to explore and reexamine his own perceptions, feelings, and assumptions. In this process he perceives Jones as a source of help. Bill feels free to express his differences. He feels that Jones has some respect for his capacity for self-direction. These positive feelings toward Jones make Bill more inclined to say, "Well, Jones, I don't quite agree with you that this is the best way to do my job, but I'll tell you what I'll do. I'll try to do it that way for a few days, and then I'll tell you what I think."

CONCLUSION

I grant that my two orientations do not work themselves out in practice in quite so simple or neat a fashion as I have been able to work them out on paper. There are many other ways in which Bill could have responded to Smith in the first place. He might even have said, "O.K., boss, I agree that your way of doing my job is better." But Smith still would not have known how Bill felt when he made this statement or whether Bill was actually going to do his job differently. Likewise, Bill could have responded to Jones in a way different from my example. In spite of Jones' attitude, Bill might still be reluctant to express himself freely to his boss.

The purpose of my examples has not been to demonstrate the right or wrong way of communicating. My purpose has been simply to provide something concrete to point to when I make the following generalizations:

1. Smith represents to me a very common pattern of misunderstanding. The misunderstanding does not arise because Smith is not clear enough in expressing himself. It arises because of Smith's misevaluation of what is taking place when two people are talking together.

2. Smith's misevaluation of the process of personal communication consists of certain very common assumptions, e.g., (*a*) that what is taking place is something essentially logical; (*b*) that words in themselves apart from the people involved mean something; and (*c*) that the purpose of the interaction is to get Bill to see things from Smith's point of view.

3. Because of these assumptions, a chain reaction of perceptions and negative feelings is engendered which blocks communication. By ignoring Bill's feelings and by rationalizing his own, Smith ignores his relationship to Bill as one of the most important determinants of the communication. As a result, Bill hears Smith's attitude more clearly than the logical content of Smith's words. Bill feels that his individual uniqueness is being denied. His personal integrity being at stake, he becomes defensive and belligerent. As a result, Smith feels frustrated. He perceives Bill as stupid. So he says and does things which only provoke more defensiveness on the part of Bill.

4. In the case of Jones, I have tried to show what might possibly happen if we made a different evaluation of what is taking place when two people are talking together. Jones makes a different set of assumptions. He assumes (*a*) that what is taking place between him and Bill is an interaction of sentiments; (*b*) that Bill—not his words in themselves—means something; (*c*) that the object of the interaction is to give Bill an opportunity to express freely his differences.

5. Because of these assumptions, a psychological chain reaction of reinforcing feelings and perceptions is set up which facilitates communication between Bill and him. When Jones addresses himself to Bill's feelings and perceptions from Bill's point of view, Bill feels understood and accepted as a person; he feels free to express his differences. Bill sees Jones as a source of help; Jones sees Bill as an interesting person. Bill in turn becomes more cooperative.

6. If I have identified correctly these very common patterns of personal communication, then some interesting hypotheses can be stated:

(*a*) Jones' method works better than Smith's not because of any magic, but because Jones has a better map than Smith of the process of personal communication.

(*b*) The practice of Jones' method, however, is not merely an intellectual exercise. It depends on Jones' capacity and willingness to see and accept points of view different from his own, and to practice this orientation in a face-to-face relationship. This practice involves an emotional as well as an intellectual achievement. It depends in part on Jones' awareness of himself, in part on the practice of a skill.

(*c*) Although our colleges and universities try to get students to appreciate intellectually points of view different from their own, very little is done to help them to implement this general intellectual appreciation in a simple face-to-face relationship—at the level of a skill. Most educational institutions train their students to be logical, lucid, and clear. Very little is done to help them to listen more skillfully. As a result, our educated world contains too many Smiths and too few Joneses.

(*d*) The biggest block to personal communication is man's inability to listen intelligently, understandingly, and skillfully to another person. This deficiency in the modern world is widespread and appalling. In our universities as well as elsewhere, too little is being done about it.

7. In conclusion, let me apologize for acting toward you the way Smith did. But who am I to violate a long-standing academic tradition!

ABRAHAM ZALEZNIK

The Dynamics of Subordinacy

THE PRESIDENT of a large, aggressive company came to me one time with an experience that had left him stunned. He had undertaken a program to select and train promising juniors for promotion to supervisory and staff jobs. He talked personally with many men and helped in the selection and preparation for promotion. The promotions were announced and followed almost immediately by a wildcat strike led by dissatisfied subordinates who felt they had been overlooked.

What shocked the president was the fact that his intention to open new opportunities, to help people design a future for themselves in his organisation, had misfired. He wondered where he had miscalculated the motivations of subordinates. He was on the verge of disillusionment with the younger generation.

This example from business is repeated in countless organisations, although not necessarily with the visibility and dramatic impact of strikes and demonstrations. More subtle forms of the discontents of subordinacy are widespread. For example:

> There is the individual who is unable to hold a job—who moves from one situation to the next expecting the grass to be greener elsewhere. The problem of "job hopping" is not restricted to any one segment of society. One suspects, for example, that executive

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placement firms thrive on the discontents and illusions of people who are willing to live perennially out of a suitcase.

The instances of sudden attitude reversal are equally instructive. Some individuals characteristically begin a relationship with an authority figure by overidealising their boss, overestimating his strengths and capabilities. There soon follows the opposite extreme of depreciation and underestimation. In listening to persons who polarize their feelings toward authority, one soon becomes aware of the crucial role of their fantasy in creating and then destroying unrealistic images of other persons. The persistence of fantasy and the willingness of individuals to act upon it at the expense of reality attest to the strength of the emotional conflicts in subordinacy.

Another manifestation of the problems in subordinacy is the recurrence of defective work performances. I refer here to individuals who are unable to follow through on assignments, who display promise but fail to complete, who are excellent critics but faulty performers, who may be verbally adept but are substantively inept.

Then there is the highly dependent individual who accepts projects initiated by others but does not himself initiate. The amount of responsibility such a person can assume reliably is quite limited. His superiors may count on him for a quality of initiative which psychologically is not in him. He seems to have little available energy for work, and to lack the capacity to stand in the limelight or make decisions in full view of everyone. Instead, he tends toward anonymity and compliance.

These symptoms of defective adaptation to positions of subordinacy in organisations by no means exhaust the range of problems. Individuals on both sides of the vertical authority relationship could add countless other descriptions of the difficulties of mastering the challenges and conflicts of the subordinate role. For the senior men these difficulties may cause concern about the nature of subordinacy, about how and why individuals in junior positions in organisations respond to their relationship with authority figures. Juniors must avail themselves of opportunities to learn from assessing consequences so that, as they mature and assume increasing responsibilities, their response to pressures will be seasoned by judgment and experience. Otherwise, we face the prospect of a severe discontinuity in the quality of leadership in business and all segments of society.

PART I—PATTERNS AND DIMENSIONS

The eruption of subordinacy conflicts into behavior, whether through group-supported rebellion or more individualistic actions, occurs as a response to the vertical relationship. This vertical relationship reflects, and is reflected in, the constellation of motives, wishes, and tensions whithin the individual himself. At the risk of oversimplifying, we can single out two trends in this constellation of motives for special attention.

One trend deals with the polar issues of dominance and submission. The potential source of conflict here is the balance achieved in the individual between his (1) wishes to control and overpower authority figures, and, at the other extreme (2) equally strong wishes to be dominated and controlled by these same figures. The theme of dominance and submission achieves a unity because both extremes aim at a single outcome: to secure the sole possession of figures who regulate and dispense life-sustaining rewards and punishments. This aim accounts for the intensity of reactions in the subordinate role, since the game is real and the stakes high. In the case of business organizations, the stakes are often related to chances for promotion and career success.

The second trend deals with the balance achieved between activity and passivity in the individual's characteristic patterns of behavior. At one extreme, the individual initiates and intrudes into his environment. At the other extreme, he characteristically waits for others to initiate action and behaves in response to the stimulation from outside himself. The active-passive modes are usually well established as character traits of the individual, having special significance in his personal economy. The personal economy reflects the tensions of reward and deprivation, of energy expended and gratifications realised, of risks which come from frustration and the need to defend against these risks.

We can use the combination of these two trends to describe four patterns of subordinacy, particularly to illustrate types of inner conflict (see Exhibit I). Let us examine each of these types in turn.

IMPULSIVE SUBORDINATE

The main feature of subordinacy that aims to dominate relationships with authority figures through active means is rebellion. The effort is to overthrow authority and flout its symbols, usually with the unconscious aim of displacing the father.

This theme of rebellion is evident in the group formations of adolescence but can continue for a long time beyond this period of life. In work situations certain forms of rebellion lead to the inability to hold a job and to diffused conflict with superiors. Other forms of rebellion are more constructive in that they overcome complacency and the status quo.

This pattern of subordinacy is shown in the A quadrant of Exhibit I.

DYNAMICS OF REBELLION

In a study of interpersonal relations and job satisfaction that I conducted in the mid-1950's,[1] I observed the nature of overt rebellion and its significance:

One of the workers, a highly gifted individual, taunted his supervisor by placing notices on the bulletin board that demanded to know why certain kinds of tools were unavailable in the shop. The notices quoted authorities who recommended these tools, and after each quotation there followed a challenge to the supervisor and the management as a whole.

The supervisor arranged to forbid the posting of notices, but the employee took this as a challenge and built a private bulletin board near his workbench on which he continued to post notices. One day the supervisor called the employee to talk to him. The employee became rude, told his supervisor to "go to hell," and found himself fired.

But the line between impulsivity as a constructive and a destructive character-trait is difficult to draw. Similar dynamics underlie it in both cases; the difference resides in the degree of individual self-control. The constructive rebel knows how to use his urge to dominate and acts in appropriate ways. The destructive rebel exerts no self-control and finds himself dominated by his own fantasies.

COMPULSIVE SUBORDINATE

Compulsive subordinacy aims to secure dominance and control, but through *passive* means. It is represented by the B quadrant of Exhibit I.

The dictionary distinction between compulsiveness and impulsiveness often leads to confusion between two psychologically different characteristics. Whereas the impulsive type acts without thinking, the compulsive type acts under the effects of overelaborated thought processes indicating a powerful conscience and strong guilt feelings.

Compulsiveness leads to rigid behaviour that seeks to expiate guilt through a number of mechanisms. The individual who acts but then reverses himself out of a sense of uncertainty is often dominated by guilt. Or the person who is indecisive, who can only think in endless riddles without reaching conclusions, is also operating under the burden of guilt.

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[1] See my book, *Worker Satisfaction and Development* (Boston, Divison of Research, Harvard Business School, 1956)

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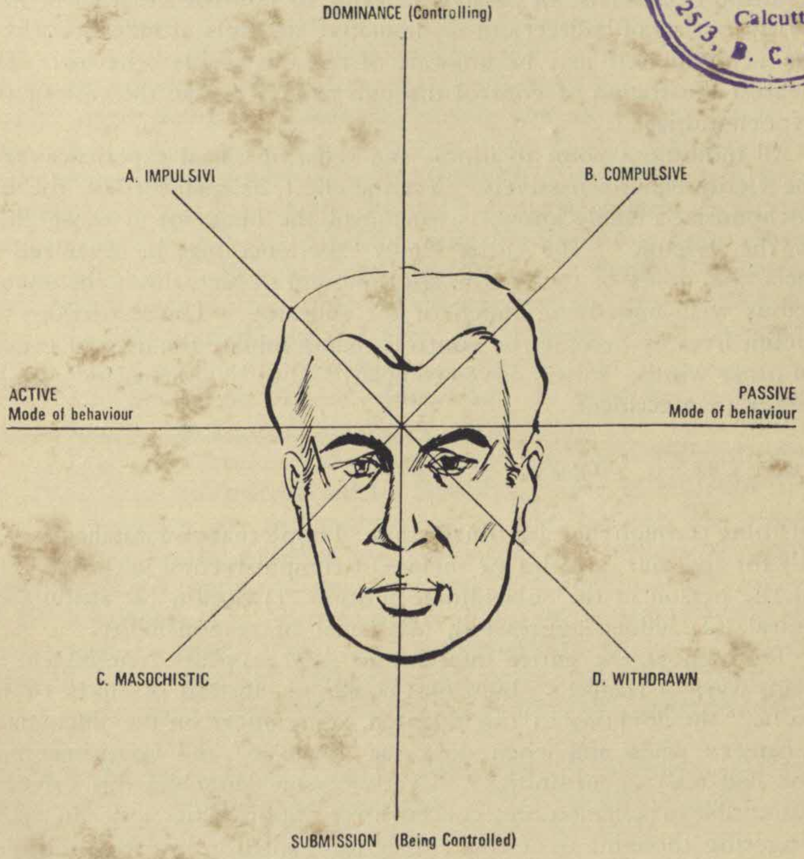
25/3, B. C. Road

EXHIBIT I. PATTERNS OF SUBORDINACY



The guilt is connected with the wish to dominate and control authority figures; the hesitation, doubt, and rigidity are connected with the defence against these wishes and the force of conscience that exerts so much pressure on the individual. The origin of the wishes—i.e., the guilt and the primitive conscience—is tied to the early experiences of the individual.

Compulsivity has a strange and intriguing quality about it, largely resulting from its use of passive behavior to control situations. Passivity consists of indirect and manipulative attempts at influence where the actor himself may be unaware of the aim of his behavior. The clearest illustration of control through passivity is in the case of the hypochondriac:

All indications point to illness and suffering as an experience that the victim endures passively. Yet the effect, as members of the hypochondriac's family know, is to control the behavior of those close to the "victim." The entire family experience may be organized to meet the needs of the victim, and, in point of fact, this is the unconscious wish underlying much of the suffering. The restrictions the victim lives by become the controls that dominate the lives of others. In other words, "misery loves company"—but by unconscious design rather than accident.

RECURRING THEMES

In going through the case illustration,* I hope that you watched especially for the four qualities or themes of compulsiveness in the behavior of the person in the subordinate postion (1) doubt, (2) attitude reversal, (3) hidden aggression, (4) denial of responsibility.

Throughout the entire interchange *doubt* appears, reminiscent in many ways of Hamlet's obsessional doubting. Instead of "to be or not to be," the doubting in our research case centers on the dilemma of a career : where and when does one "settle in" and forgo imaginary (or half-real) opportunities ? Every person launching his career is susceptible to hesitation and concern over opportunities lost. In work, lingering thoughts over the "other job" intrude into the optimism that accompanies fresh experience, just as, in marriage, they occur over the "other girl." Where other individuals stake a claim on a career, then pursue their line of work, the compulsive individual continues to doubt. As in the preceding case, he even provokes his environment to keep the doubting alive.

The stubbornness that underlies compulsive doubting is suggested again and again in our example by the inability or unwillingness of the subordinate to "hear" direct advice on the importance of ending doubt and undertaking work.

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*See the Blackman-Dodds case.

Attitude reversal, the second theme, consists of rapid oscillation between positive and negative feelings in human encounters. In the preceding case, the subordinate would not think of leaving the laboratory, "unless, of course, he (Wilkin) offers me something extraordinary." The technical term for attitude reversal is ambivalence, suggesting the simultaneous influence of both positive and negative emotions toward a single object or event. It goes hand in hand with doubting, and together they serve to maintain a steady level of tension in the individual's human relationships and work activity.

The third theme of *hidden aggression* is unavoidably present in an otherwise passive pattern of behavior. The hidden aggression appears in the illustration in accusing comments like: "All I said was I think I should visit him, and to you that's shopping around." Despite Dodd's disclaimers (e.g., "I didn't come here to fight; I don't want to disturb you"), his underlying intention is to provoke arguments and verbal tugs-of-war. This underlying motive springs from the uneasy balance between dependent and independent wishes frequently at the core of conflict in the compulsive subordinate.

The fourth theme is *denial of responsibility*. If one detects a note of frustration in supervisors who work with compulsive subordinates, it is because of the tendency to get impaled on the horns of the dilemma on which the subordinate rides. Doubting, attitude reversals, and hidden aggression are ordinarily tough to take, but the "last straw" presents itself in the denial of responsibility. Our case evidenced this theme most poignantly in the subordinate's statement at the end: "I don't understand you. I came in here to be honest with you, and you make me feel guilty." This states the essence of dominance through passivity—that conflict, problems, and nasty emotions exist in the outer world, and are infused from without rather than generated from within.

Much of the literature on management calls for authority with responsibility. I would suggest that of equal importance is the need for *subordinacy* with responsibility, a kind of response absent in the compulsive pattern just described.

MASOCHISTIC BEHAVIOR

Masochism (shown in the C quadrant of Exhibit I) consists of the quest for pleasure through the endurance of pain. True masochism is a serious emotional disturbance, but it also exists as a purposeful element in character. In the case of a subordinate who desires pain, it is an active attempt to sumbit to the control and assertiveness of the authority figure. Here again, this particular dynamic of subordinacy is to be understood as an aspect of unconscious motivation.

The pattern of subordinacy that seeks to evoke aggression from an authority figure is basically a means of guarding against one's own aggressive tendencies. The individual fears his own aggression and the prospect that, once he begins to show aggression, his destructive potential will get beyond his control. Instead of hurting others, he hurts himself through provoking others. The aim is self-destructive.

TYPICAL MANIFESTATIONS

The most common manifestation of this pattern of subordinacy occurs in the case of the accident-prone employee: he may mean to get mad at his boss, as a representative of authority, but only hurts himself through lapses of attention or taking undue risks. A side effect of this self-punishing behavior is the evoking of sympathy and attention from others. At the same time, it invites control from others and the abdication of personal responsibility.

A more subtle form of masochism occurs when the individual invites criticism and shamming by sheer inadequacies in his output. The explanation for these inadequacies does not lie in lack of ability or experience, or even lack of hard work. All of these attributes for good performance may be present; but they are not utilized and directed, because to perform well means to accept praise and responsibility while the underlying motivation is to endure persecution and shame at the hands of an imagined aggressor. To take another example:

> We observe, from time to time, individuals in organizations who "identify with the underdog"; they are quick to see injustice in the actions of authority figures and sense oppression in the lives of others who have little power and influence. Apart from the reality of oppression and the existence of the "underdog," the identification with the helpless and the weak against the powerful and the strong reflects this masochistic bent in personality. By identifying with the underdog, the subordinate aims to become a target of attack from powerful authority figures. Submission is the sought-after end, while the active-aggressive behavior is the means.
>
> A subordinate who reflects this tendency acts sometimes like an older son in the family who takes the side of the younger siblings against imagined oppressive actions of parents. This type of subordinate suffers vicariously, and perhaps simultaneously finds an outlet for pent-up aggression. The target is the oppressor, who stands in the place of parents who were the original authority figures.

It is very useful to attack oppressors, but our concern is with those who see oppression where none exists. Instances where standards of performance are enforced in an equitable way may be attacked as vehemently as arbitrary discipline. The ability to discriminate between real and imagined inequity is absent in the individual who organizes his experience around identification with the oppressed.

The masochistic pattern, as with the other extremes, continues a dynamic that originated in the early years of the subordinate's experience. The hidden desire to endure suffering at the hands of a powerful aggressor recreates the infantile wishes used to solve although tenuously, the dilemmas of early development. It is remarkable to observe the degree to which history repeates itself in the life of the individual. The repetition, however, does not occur through impersonal forces or the whims of chance, but rather through inadequate mastery of inner conflicts.

As I shall try to show later, one way of responding intelligently to the provocations of the masochistic personality is to avoid the game. The masochistic subordinate seeks pleasure in becoming the target of aggression. Avoidance of aggressive response can break the cycle and return the issue to the place where it belongs: within the individual himself. In this sense avoidance of the reciprocal (the sadistic response to masochistic provocation) holds open the possibility of learning lessons from experience.

WITHDRAWN PATTERN

The fourth pattern, withdrawal (see the D quadrant of Exhibit I), represents an outcome of successively turning interest and attention from the outer world toward one's self. The pattern is a form of submission because the individual no longer cares about the orientation and content of his work. His behavioral mode is passive in that energy from within is released only sparingly.

This kind of withdrawal through passive submission is in its extreme form a serious human disability that comes about because of lack of trust. The world is seen as malevolent and ungiving; therefore, the individual withdraws from it. But even in its less severe forms, withdrawal presents a difficult problem in superior-subordinate relationships. The subordinate's lack of trust, interest, and involvement make him unsusceptible to influence. He acquiesces and does what he is told, but without orientation and interest. He contributes little to the interchange and thinking necessary for innovative work. He may handle routine tasks well enough, but does little beyond the necessary demands of his job.

The withdrawn subordinate presents other paradoxical features. In many cases, he appears loyal and accepting of existing standards. To illustrate:

In a current study of professional scientists and engineers in a research and development center, some colleagues and I discovered a type of career adjustment with features very similar to the withdrawal pattern described above. Over an interval of about two years during which we collected data, no individual of this type left the company. All other types of career adjustment showed a small, but readily apparent, turnover, including some individuals who left because they were dissatisfied with their work and others who left for better opportunities elsewhere.

The apathy evident in the absence of any turnover was supported by further evidence.There existed, for example, an interesting excontradiction in response. On the one hand, the withdrawn type pressed personal disappointment in his career, a feeling of fatigue presumably neurotic in origin, some anxiety, and depressoin. On the other, individuals in this group tended to evolute favourably their company, supervisor, and work colleagues. They expressed little desire to move elsewhere or to seek opportunities in other types of work.

Unlike some points of view that attribute withdrawal and apathy to oppressive conditions in an organization's authority structure, the evidence supports the view that their genesis lies in the individuals' developmental history. This history typically includes a perception of a passive, withdrawn father and a cold, hostile mother, with the consequence of marked inability to mobilize and use constructively aggressive impulses. The withdrawal and apathy are themselves a consequence, along with depression, of the turning of aggression inward.

INTERPRETING THE PATTERNS

To sum up at this point, we have seen that one dimension in the continuing development of the individual from infancy through the career years is control (see the vertical axis in Exhibit I). Here, the polar issues of dominance and submission, in controlling and being controlled, exist in the fantasy and thinking process, both conscious and unconscious. The problem of control exists, so to speak, inside the skin of the person. It is not, therefore, obvious or easily described from the outside.

Fantasies about control range in the extreme, from a sense of omnipotence in relation to the environment to complete expectation that forces outside the self determine one's destiny. The range is from a kind of pathological insertion of one's self into all manner of events and circumstances to the absence of any area in which will and direction can have some influence over one's own activity and environment.

In speaking of control over environment, I refer not only to inanimate forces but also to the significant world of other persons. It is here, in the realm of human relationships, that the issue of control cuts most deeply. What the individual has had done to him in the past, in reality and in fantasy, becomes the foundation for the later attitudes toward figures both of love and authority at work and in the family.

The second dimension in this analytic structure is behavioral and *does* exist as readily observable material in everyday interaction. The dimension of activity-passivity (horizontal axis in Exhibit I) refers to the structure of individual character traits—the surface of one's self presented to others. I should note in passing that while character traits are indeed presented quite openly, the existence of these traits and their persistence in interaction *may be quite out of the awareness of the actor—the individual subordinate whose behavior we are observing.*

The reason for this seeming paradox is in the very nature of character. Character traits serve to guard the balance of motivations in the personality by presenting a patterned, habitual, and reasonably consistent mode of behavior to the environment. In this sense, character or behavioral traits exist as "armor" to protect the inner world of the person in relation to the outer world.

The dimension of activity-passivity is, of course, an oversimplified way of talking about complex behavioral acts. But it will do for our purposes. In observing individuals interacting with their environment, one can differentiate between two extremes :

> The active consists of a pattern of initiation or outward thrust. The individual stimulates the environment by directing energy outward.
>
> The passive mode typically directs a low amount of energy outward. Behavior is in *response* to stimulation from others.

Activity-passivity is seen quite clearly in group meetings, for example. Some individuals initiate, talk a great deal, and direct their energy toward other persons. Other individuals are quiet, talk little, speak only when spoken to, and release little energy in the process (even though the situation seems to invite their more active participaton).

The combination of the two dimensions of inner motivation and external behavior establishes the four patterns of subordinacy. In the descriptions and interpretations of these patterns, I have emphasized the more extreme representations. I have also tried to present a process rather than, necessarily, a particular person. While individuals in the subordinate role usually tend toward one or the other of the four patterns, they are not rigidly fixed in a category. There is a measure of flexibility and variation depending on the person's dispositions, the time, the place, and the particular individuals with whom relationships develop.

PART II—IMPACT ON DEVELOPMENT

As I have hinted earlier, the problems a man experiences in subordinate positions are usually the end product of a long historical process for him. Developmental experiences in successive stages of the life cycle, particularly in the family lay down the basic patterns of subordinacy.

IN ADOLESCENCE

The direct and conscious confrontations with the problems of authority and subordinacy usually occur during the adolescent stage of development. This period is fraught with pain and anxiety for parents and adolescent alike. To a great extent, subordinacy conflicts in the business organization represent the prolongation or continuation of the adolescent life crises.

The essential task of adolescence is to achieve independence from the family and assume the responsibilities as an adult. This task, in reality, is never fully completed, yet we usually acknowledge its completion when the individual begins his work career, marries, and becomes the head of a family.

The difficulty in adolescence stems from the presence of opposite forces in the personality. There is both a "push" toward rapid maturation, for which the person may feel inadequately prepared, and a "pull" toward the securities in the earlier close relationships with the parents. Yet the pull has to be overcome or there would be little basis for severing the old ties and establishing the new ones of adulthood.

This simultaneous push and pull accounts for much of the bizarre quality of adolescent behavior. The individual himself, let alone those who care for him, may not know whether to respond to the push of development or the pull of security and comfort in the family circle. Both aspects have to be defended against until they have been assimilated within the personality.

To make matters even more difficult for the developing adult, the crisis of adolescence reawakens and reactivates a series of conflicts from the earlier stages of development. We owe a great deal to psychoanalytic psychology for revealing the dynamics of development from birth onward, especially in its demonstration of the importance of the infancy years. Of particular significance here is the reactivation during adolescence of the conflicts of (1) *intimacy*, in the relationship between mother and child, and (2) *initiative*, in the triangle of mother, father and child.

INTIMACY AND DEPENDENCY

The pull confronting the adolescent is toward restoration of the primary love and dependency relationship with the other. During the earliest period of development, well before the child begins to acquire the capacity to use words and concepts, all of his life-giving needs are secured in the intimacy of the primary pairing with his mother or some substitute figure. In many ways, this initial intimacy prepares the child for the experience of intimacy as an adult, but it contains danger as well. The danger comes from two sources:

1. *Separation*—Separation from the primary relationship of intimacy usually generates considerable anger and even rage. This anger must somehow be dissipated and channeled into constructive ends during development; otherwise, it remains as a destructive potential in one of the four patterns of subordinacy described earlier.
2. *Desire to restore intimacy*—This regressive pull acts very strongly on the developing individual. If the pull becomes strong enough, and the individual gives in to it, he may remain markedly dependent all his life and unable to take the steps necessary for mature adulthood in work and family.

   Evidence of the strength of the pull toward restoration of the earlier security is available in adult distrubances such as alcoholism, depression, and stomach ulcers. These symptons in the adult reflect the desire for the primary intimacy relationship and and also guard against the rage and anger caused by separation from it. I would take the current interest in "the angry young man" theme of contemporary novels and films such as *Saturday Night and Sunday Morning* or *This Sporting Life* as a reflection of the problems posed by the pull toward passivity in the male, which they describe effectively.

INITIATIVE AND COMPETITION

Conflicts of initiative are also reawakened during adolescence, as a result of the dangers imagined in the push toward maturation. Here, again, the problem is not experienced for the first time during adolescence but is instead a reactivation of earlier dilemmas in development. In this case, the dilemma is spun out in the structure of the triangle of mother-father-child. The triangle is relevant in all life situations and is fashioned along the lines of the early rivalry for supremacy, the desire to be number one.

Sigmund Freud noted the importance of the triangle in observations of emotionally disturbed patients who appeard anxious, guilt-ridden, and dominated by undefined fears of attacking and being attacked. He correlated the adult disturbances with a conflict in infancy occurring between the ages of three and six, which he called the "Oedipus complex," after Sophocles' tragedy, *Oedipus the King.* The triangle in this Greek tragedy consists of Oedipus, his mother, and his father. Oedipus unknowingly kills his father, marries his mother, and becomes the king. Oedipus blinds himself in the first flood of his remorse and is cast out of the community.

The appeal of this tragedy, as of many similar dramatic portrayals of the eternal and fateful triangle, is that members of the audience can be aware of the conflict while remaining in a safe position; as members of a collective body they are at a distance from their own oedipal anxieties. Studies of normal as well as pathological human development indicate that the oedipal period is a common growth phase. Here the young male child has a strong longing for the sole possession of his mother and treats his father as a rival. The longing and rivalry are contained for the most part in fantasy and play activities of the child. But their strength and significance should not be underestimated.

The child, while experiencing this longing and rivalry, is aware of the superior strength of the father and fears retaliation for his wishes. This fear springs from the tendency of the child to attribute to project his own inner fantasies on to the father. This attribution becomes a feeding ground for anxiety; when strong enough, it becomes displaced in the form of phobias and related anxiety symptoms. Among the most important symptons are work inhibitions, especially the inability to exert initiative and to perform.

The Oedipus complex is initially resolved in the child's capacity to test reality through the eyes of loving parents. He identifies with his rival and delays the gratification of infantile wishes: "If I cannot substitute for Father, I will try to be like him." This formula for identification becomes the dynamic for subsequent development, including the capacity to learn and assume, at an appropriate stage in life, the position of a responsible man.

But it would be a mistake to view the Oedipus complex as a piece of finished business at the time the child enters school. For many individuals the issue is not so simply resolved and may lead to a frozen position in the developmental tasks of life or a retreat to an earlier stage of development. Even without marked failures in the mastery of the Oedipus complex, one finds the reopening of the classic problem of the triangle during subordinacy crises of adolescence and adulthood.

The individual functions in the role of subordinate through most of the adolescent and career years. The oedipal strivings may continue to exert a strong pull toward immature behavior and account for many of the problems of subordinacy that we observe in everyday life. The over-anxious subordinate, the poor performer, the indecisive man—for these and other types of people, personality conflicts involving subordinacy reflect the impact of the Oedipus complex.

LEARNING THROUGH CONFLICT

The conflicts of intimacy and initiative are inherent in the process of development. They are not to be viewed as negative experiences by themselves, since all development from infancy onward takes place within a matrix of conflicting forces—the push toward maturity and the pull toward restitution of earlier gratifying situations. Instead, the main test of development is in the kind and degree of learning through inner conflict.

The objective of learning remains central to our interest in resolving the conflicts of subordinacy. And with this idea in mind, let us turn to some conclusions based on the preceding analysis.

PART III—IMPLICATIONS

There are presumably two points of view involved in the question of how to resolve subordinacy conflicts—not only that of the individual in the midst of personal subordinacy conflicts, but also that of the authority figure on the other side of the vertical relationship. How can the person who exercises authority in relation to other individuals help minimize these conflicts and aid his subordinates in their efforts to grow and mature?

Actually, these two points of view are interrelated. In examining the personal and interpersonal problems of any individual in an organization, it is impressive to note the fact that no one is ever separated from the role of subordinate, no matter how high his position in the hierarchy. Everyone has one or several authority figures whose evalutions and responses are of great personal significance. Simultaneously, however, there are subordinates who look to this same person for direction, guidance and evaluation.

SELF-MANAGEMENT

The fact that authority and subordinacy conflicts exist within a web of human relationships does not minimize the importance for the individual of learning to assume responsibility for his own behavior. Whether looking at the relationship from above or below, he has to learn to separate his reactions from those of other persons and to achieve appropriate self-management. This attitude of self-management contradicts the tendency to attribute blame to others for the personal predicaments of immediate experience.

One important practical implication of self-management is the awareness of how frequently one tries to relive old conflicts from the past in the present. All too often bosses in organizations become shadowy father figures from the past and are used as objects for the transfer of unresolved conflicts. The subordinate should learn to recognize his tendency to overload present relationships in terms of personal history, and seek to mediate and govern his reactions so that they accord with reality. It is unrealistic, for example, to overidealize one's boss, just as it is usually unrealistic to depreciate his authority and competence.

Superior and subordinate alike can experience considerable help in viewing the conflicts of subordinacy as conditions of development. Subordinates, in fact, do learn from experience, provided they are not excessively overburdend with the unfinished business of past relationships with their parents. In cases where the indications are massive that a subordinate's past has taken over the present reality in his mind, then it pays to undestand that, by and large, little change can occur in the superior-subordinate work relationship.

The superior is not in a position to act as therapist for his subordinates. He should not try to do so, and he should be sufficiently knowledgeable to sort out the realistic issues in his work relationships from the neurotic conflicts of personal development. Focusing on the realistic issues helps to remove the edge of guilt from human relationships in work situations, and frequently serves to remove much of the static that impedes communication.

Both superior and subordinate can learn from experience when they are reasonably free of past conflicts. Growth and change do occur, but only very slowly, and more readily for those individuals who are building on a strong foundation of personal competence. For those who cannot so learn—for whom lessons learned in the past obstruct the capacity to function in the present—re-education is necessary. This re-education takes place best within a professional relationship, and it is usually wise to seek out a specialist in psychoanalysis and psychiatry for such help.

GUIDELINES

What guidelines will help to govern the transactions in superior-subordinate relationships ? Here are some ideas and suggestions.

1. *Know Your Own Mind*

It is important for both superior and subordinate to know where they stand on issues of work or personal conflict. We usually hear that it is important to listen to the other person and understand his point of view. This is good advice as far as it goes. What gets left out, to the misfortune of all concerned, is the fact that competent behavior depends on the ability of the individual to know where *he* stands and what *he* would like to see happen. In particular, the authority figure may find himself tyrannized by his own vacillations. If the subordinate is confused and torn by mixed feelings, it will do him little good to find his boss equally confused. In this sense, knowing where one stands and being prepared to take a position have a salutary effect on human relationships.

2. *Avoid the Disabling Reciprocal*

In every interpersonal relationship there is ususally a balancing effect that takes place. A particular pattern of behavior of the subordinate implies a reciprocal pattern of behavior on the part of the superior, and vice versa. If one individual talks, the reciprocal role necessary to balance the transaction is that of the listener. The relationship is unbalanced in this case if both individuals talk at the same time.

But a balanced relationship is not always desirable, either. It is especially undesirable to play the reciprocal to a subordinate strongly characterized by one of the four patterns of subordinacy earlier described. Each of these patterns tends to evoke a kind of reciprocal response that reinforces the conflict and creates a vicious circle. For instance, the masochistic subordinate seeks to evoke aggression and punishment. If he succeeds, his behavior is reinforced.

A reciprocal may in some cases be the opposite behavior; in other cases, the reciprocal is a similar response. For example:

> The compulsive doubter evokes doubt and guilt in others as the reciprocal response. The avoidance of the reciprocal in this case means to present a firm and decisive stance to break the chain of doubt.
>
> Similarly, avoidance of the reciprocal for the masochistic subordinate would mean refraining from punishment; this would break off the transaction he hopes to induce and require him to think again.
>
> But when a subordinate's behavior is impuslive, the tendency is to take the reciprocal and give in. The proper response, in this

case, is to avoid the reciprocal, maintain authority over him, and stay in control of the relationship.

The reciprocal cannot be avoided if the individual pondering these guidelines for behavior is a poor observer of human interaction and emotion. To choose, or to avoid, the reciprocal with intelligence requires the ability to observe and understand human behavior. A good way to start cultivating this ability is to try to read accurately one's own behavior.

3. *Watch for the Resonance Effect*

There is a strong tendency in human relationships for individuals to experience the feelings that others have in the course of face-to-face interactions. In this sense we tend to resonate in response to the tones of feeling originating in other persons. In the positive, resonance may yield the quality of empathy, the capacity to sense what is going on in the other person. However, there is also a negative to resonance that is worth watching.

In no case should the origins of emotions be confused. The compulsive subordinate lives with guilt and, by the process of resonance, tends to generate guilt in others. Trouble can be avoided when one identifies the resonance effect and clearly separates the origin of the feeling from his own reactions. Once the sources of the feelings are properly located, the individual is free to respond in terms of his own evaluation of what is needed. Exercising freedom of response provokes rethinking and learning as oppposed to the deadly repetitive patterns encountered so frequently in superior-subordinate relationships.

4. *Objectify Conflict*

When conflict arises in superior-subordinate relationships, a potential for deterioration arises. It is not useful to increase this potential by dealing with the emotional bases of the conflict head on. For one thing, it may not be at all clear in the minds of the individuals concerned just what the emotional factors are. For another thing, the emotions may be too painful to bring into the transaction.

The potential for deterioration gets minimized when, in the course of communication, ways are discovered for objectifying the conflict. This means that issues are broken down into components and that procedures are discovered for dealing with them. The size and scope of the conflict are reduced to manageable proportions as ways are found for exploring particular concerns. The effort, in other words, is directed toward partial answers rather than toward the heroic attempt to solve total conflicts once and for all.

5. *Identify and Address Reality*

Work relationships are governed and judged in the final analysis by their contributions to purposes. There are always present, therefore, practical issues and realities to which attention can be addressed. The purpose of superior-subordinate relationships in most organizations is to identify those problems that require solutions in order to move the organization closer to its goals.

The orientation to reality does not require coldness or insensitivity. On the contrary, the search for real problems can be conducted with considerable enthusiasim and regard for feelings. But, at the same time, warmth and sensitivity are not substitutes for problem solving and other attempts at dealing with reality.

6. *Maintain Contact*

There are times in organizations when the going gets tough for authority figures and subordinates alike. The temptation to withdraw is great during these painful experiences. As a temporary measure, withdrawal may be quite necessary and constructive—for instance, as a prelude to forming and consolidating a new position. But withdrawal fails as a permanent stance.

Withdrawal in the face of injury breaks contact with reality. If the withdrawal persists, fantasy can take over, leading to a whole host of incorrect ideas about the situation in which one finds himself. This in turn leads to difficulty in introducing the corrective mechanisms associated with learning, particularly where authority relations are concerned.

There are many ways known to all of us to maintain contact in the face of injury. The main problem is to avoid the temptation to withdraw when it is unconstructive.

RECOGNIZING REALITY

In reviewing and thinking about these guidelines for resolving the conflicts of subordinacy, one principle stands out. This is the need for superior and subordinate alike to recognize the truth when they see it. I refer here not to abstract truth, but to the concrete reality of that which exists in human relationships.

Before change can occur in one's self and others, recognition must be given to the reality. It is here that observation and understanding play a very important role in human relationships. It is in this sense that a description and explanation of patterns of subordinacy can be useful to both seniors and subordinates in modern organizations.

JOHN ANDERSON

Giving and Receiving Feedback

PURPOSE

THE PURPOSE of this article is to discuss a few considerations involved in telling another person how you feel about him—"how to do it" considerations that are apt to be important, if your objective is to help him become a more effective person, and also to arrive at a more effective working relationship between him and yourself.

BACKGROUND

One of the central purposes of Group experience in a Managerial Grid or sensitivity training lab is to help the participant become more clearly aware of the impact he has on others. That is, during the laboratory experience, the participant has an opportunity to talk with others, solve problems with others, and in general interact with others, in ways that are characteristic for him. The image he projects, then—the impression that others have of his behavior—is communicated back to him by other group members. And this sort of exchange is usually a good deal more open than what is common in everyday life. The intent, at least so far as the objectives of the program are concerned,

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is that this feedback will be helpful to the recipient—that he may see, for example, some discrepancies between the effect he wished to create (and, in fact thought he was creating), and what actually took place, with the hope that he will be able to use this information in making a more intelligent choice of behavior with which to deal with similar situations in the future.

Unfortunately, such feedback (for reasons of content, timing, and the way it is given) does not always turn out to be useful to the recipient. And, although the very large majority of managers who participate in public sensitivity or Grid training labs return saying that overall the experience was a very helpful one for them personally, still many have felt that, "This is a kind of thing you sure couldn't do with people you work next to all the time!" The fear is that if the members of a work team did attempt to enter into an experience of this kind together, either:

1. They would not dare to be open and candid with one another and the result, therefore, would be a superficial and useless experience; or
2. They would dare to be open with one another, and the result would be one of disruption in team working relationships, escalation of bad feelings carried over from old grievances, etc.

Several companies have now experimented with some sort of team lab. In my own, Procter & Gamble, the design we have used was varied considerably depending on the needs of the particular group. But in no instance have the two fears mentioned above (organized slumber or total destruction) materialized. Each has turned out to be, in the judgment of the large majority of participants, a very useful and very worthwhile experience from the standpoint of building more effective working relationships on the job. In general, people seem to be both concerned enough for one another, and *trusting* enough of one another that they are able to be *appropriately* open in exchanging feedback during a team lab situation. It's my belief that instances in which people have only hurt or confused one another in exchanges of this kind have been the result not so much of motivational problems, as problems of skill in giving feedback—that is, knowing *how* to do it well, and what kinds of pitfalls to watch out for. So, so much for background. What follows, then, is a summary of what I feel are some of the more important considerations drawn from a fairly limited and scattered literature on the subject, and from my own personal observation of some of the holes people seem to dig themselves into in experiences like this. I think it is particularly important that these thoughts be given some attention in groups that are to be conducted without the benefit of outside help—that is, where a trained, skilled, experienced, outside observer will not be available to get things back on track if they should begin to wander off in un-useful directions. I'm thinking of Managerial Grid, or other instrumented, trainerless lab designs. No doubt the following considerations also have some application to the conduct of "performance appraisal" discussions as well as other informal exchanges that often take place between people in or out of the workplace.

THE FIRST GENERAL TEST

I think the first, most general, and most significant criterion that "helpful feedback" must meet is simply that it be *intended* to be helpful to the recipient. That is, the sender of the message should ask himself beforehand, "Do I really feel that what I am about to say *is likely to be helpful to the other person* ?" I need to examine my own motivation, that is, and be sure that I am not simply about to unload a burden of hostility from my own breast and for my own personal benefit, quite regardless of the expected effect on the receiver. Otherside, I may convince myself that my only obligation is to be open and honest—that the name of the game is "candor"—and that so long as I truly and completely "level," I have fulfilled the only necessary obligation. If my objective is to *help* the recipient of the feedback, then, three things are necessary.

1. The other person must *understand* what I am saying.
2. He must be willing and able to *accept* it.
3. He must be *able to do* something about it if he chooses to.

GETTING UNDERSTANDING

Two most important considerations in getting understanding of the message sent are:

1. Feedback should be specific rather than general. If I can give the man I am talking to specific examples of instances in which he has behaved in the way I am describing, it will be much easier for him to understand what I am talking about than it will if I speak only in terms of generalizations about "what he is like." For example, if I tell him that I think he talks too much, or doesn't express his thoughts very clearly, this is likely to be *less* helpful to him than if I am able to cite a particular situation, tied to him and place, where I thought he exhibited this behavior. If I can recall vividly to his mind a particular instance in which he rambled on long after I had gotten the idea of

what he was trying to say, or when he had gone on and on and on without ever getting across clearly the idea of what he was trying to say to myself or to a group, he is more likely to be able to get a handle on what it is I am trying to tell him. Or at least I will have opened up an area for him that we can then explore further to try to understand what was going on in the situation, so that he can come out of it with a clearer idea of some specific things he might consider doing differently in the future. The key here is, don't just generalize about what kind of a person he is. Give examples.

2. Another important factor in getting understanding is this: Other things equal, recent examples of behavior are better than old ones. To understand what was happening in the situation, a person obviously has to be able to recall the situation somewhat vividly. What happened two minutes ago will be more vividly recallable than what happened an hour ago, which will in turn be more easily remembered than what happened yesterday, last week, last year, five years ago, etc.

GETTING ACCEPTANCE

There are circumstances in which anyone will find it most difficult to accept critical, negative, feedback—times at which it will be very difficul for anyone to face what is being said to him in an open, objective frame of mind. I think three things are most important in gettng this acceptance :

1. There needs to be a minimum foundation of trust among members of the group before this sort of experience is entered into. If A is to accept critical feedback from B, A must be somewhat convinced from his previous associations with B, that B's motivations where A is concerned aren't entirely self-serving—that is, that B *does care* for A and can be trusted to be saying what he is saying because he really feels that it will benefit A to do so. Where B has a deep distrust of A going into this situation, there is probably very little that A can do to get B's voluntary acceptance of what he is telling him.
2. How A addressed himself to B in this specific situation, however, can also be an important factor. If A's tone of voice, the expression on his face, his choice of words, and everything about him communicates directly to B the impression that, "I value you, and I really would like to help you, and that is the only reason I am telling you this," then B is more likely to attend to the message with an open mind than if A simply rattles off a list of

intellectual observations about B's behavior, perhaps without even looking directly at him while he does so.

3. In sending negative feedback to another person, he will also be more likely to receive it in an accepting frame of mind if I am descriptive—rather than evaluative in what I say to him—that is, if I simply describe what happened as I saw it in a particular situation and tell him of the effect it had on me, as opposed to evaluating in more general terms the goodness or badness, rightness or wrongness, of what he did. If I tell you, for example, that, "This may not be your problem; it may be mine. However, I want you to know that when you act toward me the way you do sometimes (describe a situation, in time and place,) it is very difficult for me to (think straight, keep from getting mad, keep my mind on what we are talking about, keep from going to sleep, etc.,—whatever fits the stuation that I am trying to describe)," you are much more likely to be able to accept this message in an open frame of mind than if I tell you, "I think it is just terrible when you act toward people that way, I think you ought not to be that way, that's a completely senseless way to act, why don't you grow up, etc. . . . ".
4. Before giving a person negative feedback of any kind, I ought to ask myself whether *now* is a good time to do it—whether he *appears* to be in a condition of readiness to receive information of this kind. If he appears, for example, to be angry, confused, upset, highly distraught, defensive, etc., the answer is probably no. I ought not to load any more on him right now.

Perhaps in a way it is for this reason that feedback which is solicited by the recipient is somewhat more likely to be received in an open state of mind than feedback which is simply sent at him whether he has asked for it or not. And the more specific the area in which feedback is solicited, the more likely it is to be expected and received in an open frame of mind. For example, suppose the leader of a group says to his people, "How about the X decision I made last Friday. Do you feel that that was one I arrived at in an appropriate way, or do you feel that I should have involved you all more before arriving at a conclusion ?" As a member of the group, I would feel that this solicitation of feedback was more genuine and could be responded to more openly and with more confidence that it would be received in an open frame of mind, than I would feel when the leader of the group, perhaps a bit too intensely or with a laugh that is a little too loud, says something like, "O.K., men, this is my turn in the barrel ! Really level with me now ! I want to hear everything you don't like about me !" He may or he may not. All I am suggesting is that if overt solicitation is indicative of probable acceptance, the former sort is apt to be more meaningful than the latter, all by itself.

5. There is always the problem that feedback sent by one man to another will be accepted as valid when in fact it ought *not* to be. For example, if I tell you that there is a particular thing you do in our relationship that I find most upsetting, it may be that the problem isn't yours at all, but rather that it's mine. One of the values of entering into this sort of exchange in a group, as opposed to doing so only in a one-to-one relationship, is that the feedback that each man gives another can be checked around the group to see whether anyone else has common experience of this kind which would support or clarify the meaning of what is being said. This should always be done, both as a check on the validity of the observation, and to be sure that the recipient gets as many examples as are available to help him understand what is being said.

ASSESSING RECEIVER'S ABILITY TO USE THE PARTICULAR FEEDBACK

The third criterion I mentioned that "useful" feedback should meet is that the recipient be able to do something with it.

1. Suppose I feel that a man does not present his ideas as forcefully and persuasively as he ought to, to get the attention they deserve from the group; and I decide I want to tell him about this. This is still a pretty general feeling, and before saying anything, therefore, I should consider what specifically there is about his delivery that makes me feel that way. Now if I think, for example, that he doesn't organize his thoughts as well under some circumstances as I know he is capable of (from other experience I've had with him), this is an example of something I might assume he could do something about, and so I probably should tell him I feel that way, especially if I can give him specific examples of instances in which he has done this. Or suppose I feel that he gets his ideas out all right, but that as soon as he receives any static from anyone about them, he withdraws either from indifference, lack of confidence in his own ideas, or whatever. This too I might choose to tell him about, because I could expect that he might be able to do somethng about it.

   On the other hand, suppose I feel that one of the key things that interferes with his ability to persuade, to carry his ideas over to a group forcefully, is that he is physically a very little fellow, and with a high squeaky voice, or possibly an even more pronounced speech impediment. If I am really trying to be helpful to him there obviously is no point in calling these to his attention.

If I feel that he has a very limited vocabulary and this is getting in his way, there might be some point in his career when I would conclude that this was a helpful thing to tell him about—e.g., that he doesn't use words correctly, or that his grammer is poor. These are correctable problems. On the other hand, if he is nearing the end of his career and there is no likelihood that he is at this point in time going to try to do anything about his general skill with the English language, then there is no point in calling this to his attention.

So, by this criterion, you might or might not decide it would be helpful to tell the other person you felt he did not project his ideas in the group as forcefully or persuasively as he might. Whether you chose to do so or not would depend on your best estimate of his ability to do something about the particular barriers you saw to his effectiveness in this particular area.

2. During a group session in which members are exchanging their views of and feelings about one another in this way, there may be a tendency to feel that you haven't really done a man justice unless you have told him "everything that bothers you" about him. It is not at all necessarily desirable, however, to be "complete" in the negative feedback you might give a person. It may be quite a long enough task, for example, for me to understand, accept, and consider doing something about my characteristic ways of behaving in two or three key areas. To give me more than this to think about may be simply spreading my attention beyond what I am capable of dealing with at this particular time. Also, other things equal, the more you unload on me, the more threatening the experience is liable to be, and the more difficulty I am likely to have accepting any of it in an open frame of mind.

SUMMARY

So, to summarise, to be maximally useful to the recipient, feedback should meet the following criteria. It should be:

1. Intended to help the recipient.
2. Given directly and with real feeling, and based on a foundation of trust between the giver and receiver.
3. Descriptive rather than evaluative.
4. Specific rather than general, with good, clear, and preferably recent, examples.

5. Given at a time when the receiver appears to be in a condition of readiness to accept it.
6. Checked with others in the group to be sure they support its validity.
7. It should also include only those things that the receiver might be expected to be able to do something about.
8. And he should not be told more than he can handle at any particular time.

RISK OF EXCESSIVE CAUTIOUSNESS

Finally, the question might be asked, "Isn't there some risk that if all these cautions are followed, people might be induced to be overly cautious, and decline to take any risks (and what would probably be desirable risks) in being open with one another ?" This is a reasonable question, and I think the answer is yes—this is a risk in itself. Many of us have a tendency to feel that we couldn't possibly share with other people the negative feelings we have about them. They would be crushed if we did so. Or they would never forgive us. All of the criteria listed above are simply considerations that should be given some attention by the sender or feedback. But it will no doubt be impossible to meet all of them, all of the time, and still have some thing to say. And so, I think in such cases it is appropriate to take prudent risks—to be open more than closed, experimentally, and see what happens. If you at least really *intend* to help—and there is no doubt that you intend to help by the manner in which you say what you say—then a good deal of clumsiness is almost certain to be overlooked by the receiver. Even if he doesn't understand or agree with what you are saying, he at least will probably not hold it against you. And if his defenses stay down, together you may be able to clarify meanings, draw out essentials, and in general compensate for your initial clumsiness in trying to help.

RECEIVING FEEDBACK

I think there is less to say to the recipient of feedback about ways in which he might approach this opportunity :

1. First of all, he should make a sincere effort not to be defensive. This has as much to say about what he allows to go on inside him, as about what he allows himself to say overtly to those who are giving him feedback. He should try to look at what is being said with an open mind, trying to understand it, and not all the while explaining to himself and others. "They simply don't understand; it isn't what I meant at all."

2. If the recipient of feedback is having difficulty understanding what people are trying to tell him and they are unable to come up with examples that clarify things for him, he should begin to seek and speculate on possible examples himself with the group—to say, for example, "Remember the time we met last Friday, and I did such and so. Is that the kind of thing you are talking about?"
3. To be sure he understands, I think it is a good idea for the recipient of feedback to try to summarize briefly for the group what he understands them to be saying. This gives them a final opportunity to check misunderstandings that might have taken place.
4. I think it can be very helpful to an individual and to a group if the recipient of feedback from others is allowed, and encouraged to share his feelings with the group about the kind of thing they have been discussing—that is, his behavior in certain situations. The risk of defensiveness is one that all should be alert to. However, if a man can explore openly some of his feelings about why he tends sometimes to behave in "that" way, two things can happen. First, he may arrive at a better understanding himself of why he behaves in the way he does, simply in talking it through, and thereby be in a better position to consider what he might do about it. Secondly, if he does find it difficult or impossible to do anything about the behavior that has been negatively described to him by the group, even though he tries, if he has genuinely shared with them some of his concerns and some of the internal struggles he has in these situations, they may at least find it a little easier to understand and accept that behavior from him in the future.
5. As a final point, I believe some people react negatively to the very idea of doing this sort of thing—that is, meeting as a work team and exchanging in a quite open fashion our views of how we see one another, positively and negatively. The feeling may be that, "I am what I am, and I have a right to be that. And no group of people has a right to dictate to me what I should be like." My feeling is that this is exactly right. It remains, and should remain the right of each individual to evaluate what he hears, decide what he believes of it, and decide in what respects, if any, he feels it is personally worth his while to make the effort to change. The purpose of a team lab of the kind described here, and of the kind of information that is exchanged in it, is simply to give a man better and clearer information than he ordinarily receives on which to make his own judgment of his personal effectiveness in working with others, and of how or whether he wishes to further develop that effectiveness.

PART THREE

Understanding Two-Person Relationships

Mr. Hart and Bing

Metal Company of India (Meco)

Blackman-Dodds

Mr. Shekhar

CASES

Mr. Hart and Bing

THE SHOP situation reported in this case occurred in a work group of four men and three women who were engaged in testing and inspecting panels for electronic equipment. The employees were paid on a piecework incentive basis. The personnel organization of the company included a counselor whose duty it was to becomes acquainted with the workers and talk over any problems which they wished to discuss with him. The summarized statements of "Bing," the employee, and Mr. Hart, the supervisor, are excerpts from five interviews the counselor had with each of them within a period of about two weeks.

A SUMMARIZED STATEMENT OF HOW "BING" FELT

"According to the system round here, as I understand it, I am allowed so much 'set-up' time to get these panels from the racks, carry them over here to the bench and place them in this jig here, which holds them in position while I inspect them. For convenience sake and also to save time, I sometimes manage to carry two or three over at the same time and inspect them all at the same time. This is a per-

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fectly legal thing to do. We've always been doing it. Mr. Hart, the supervisor, has other ideas about it, though, he claims it's cheating the company. He came over to the bench a day or two ago and let me know just how he felt about the matter. Boy, did we go at it! It wasn't so much the fact that he called me down on it, but more the way in which he did it. He's a sarcastic b . . . d. I've never seen anyone him. He's not content just to say in a manlike way what's on his mind, but he prefers to do it in a way that makes you want to crawl inside a crack in the floor. What a guy! I don't mind being called down by a supervisor, but I like to be treated like a man, and not humiliated like a school teacher does a naughty kid. He's been pullin' this stuff ever since he's been a supervisor. I knew him when he was just one of us, but since he's been promoted he's lost his friendly way and seems to be havin' some difficulty in knowin' how to manage us employees. In fact, I've noticed that he's been more this way with us fellows since he's gotten married. I dunno whether there's any connection there, but I do know he's a changed man over what he used to be like when he was a worker on the bench with us several years ago.

"When he pulled this kind of stuff on me the other day, I got so damn mad I called in the union representative. I knew that the thing I was doing was permitted by the contract, but I was just intent on making some trouble for Mr. Hart, just because he persists in this sarcastic way of handling me. I'm about fed up with the whole damn situation. I'm tryin' every means I can to get myself transferred out of his group. If I don't succeed and I'm forced to stay on here, I'm going to screw him every way I can. He's not gonna pull this kind of kid stuff any longer on me. When the union representative questioned him on the case, he finally had to back down, 'cause according to the contract an employee can use any timesaving method or device in order to speed up the process as long as the quality standards of the job are met. During the discussion with me and the union representative, Mr. Hart charged that it was a dishonest practice and threatened to 'take it up the line' unless the union would curb me on this practice. But this was just an idle threat, 'cause the most he can do is get me transferred out of here, which is actually what I want anyway.

"You see, he knows that I do professional singing on the outside. He hears me singin' here on the job, and he hears the people talkin' about my career in music. I guess he figures I can be so cocky because I have another means of earning some money. Actually, the employees here enjoy havin' me sing while we work, but he thinks I'm disturbing them and causing them to 'goof off' from their work. It's funny, but for some reason I think he's partial to the three female employees in our group. He's the same with all us guys as he is to me, but with the girls he acts more decent. I don't know what his object is. Occasionally, I leave the job a few minutes early and go down to the washroom to wash up before lunch. Sometimes several others in the group will accompany me, and so Mr. Hart automatically thinks I'm the leader and usually bawls me out for the whole thing.

"So, you can see, I'm a marked man around here. He keeps watchin' me like a hawk. Naturally this makes me very uncomfortable. That's why I'm sure a transfer would be the best thing. I've asked him for it, but he didn't give me any satisfaction at the time. While I remain here I'm gonna keep my nose clean, but whenever I get the chance I'm gonna slip it to him, but good."

A Summarized Statement of How Mr. Hart Felt

"Say, I think you should be in on this. My dear little friend 'Bing' is heading himself into a showdown with me. Recently it was brought to my attention by the Quality Control Checker that 'Bing' has been taking double and triple setup time for panels which he is actually inspecting at one time. In effect, that's cheatin', and I've called him down on it several times before. A few days ago it was brought to my attention again, and so this time I really let him have it in no uncertain terms. He's been getting away with this for too long and I'm gonna put an end to it once and for all. I know he didn't like my calling him on it because a few hours later he had the union representative breathin' down my back. But you know what talkin' to those people is like; they'll sometimes defend an employee, even though they think he's takin' advantage of the company. Well, anyway, I let them both know I'll not tolerate the practice any longer, and I let 'Bing' know that if he continues to do this kind of thing, I'm gonna take official action with my boss to have the guy fired or penalized somehow. This kind of thing has to be curbed. Actually, I'm inclined to think the guy's mentally deficient, because talking to him has actually no meaning to him whatsoever. I've tried just about every approach to jar some sense into that guy's head, and I've just about given it up as a bad deal. I just can't seem to make any kind of an impression upon him. It's an unpleasant situation for everyone concerned, but I'm at a loss to know what more I can do about it.

"I don't know what it is about the guy, but I think he's harboring some deep feelings against me. For what, I don't know, 'cause I've tried to handle that bird with kid gloves. But his whole attitude around here on the job is one of indifference, and he certainly isn't a good influence on the rest of my group. Frankly, I think he purposely tries to agitate them against me at times, too. It seems to me he may be suffering from illusions of grandeur, 'cause all he does all day long is sit over there and croon his fool head off. Thinks he's a Frank Sinatra! No kidding! I understand he takes singin' lessons and he's working with some of the local bands in the city. All of which is O.K. by me; but when his outside interests start interfering with his efficiency on the job, then I've gotta start paying closer attention to the situation. For this reason I've been keepin' my eye on that bird and if he steps outof line any more, he and I are gonna part ways.

"I feel quite safe in saying that I've done all I can rightfully be expected to do by way of trying to show him what's expected of him. You know there's an old saying, 'You can't make a purse out of a sow's ear.' The guy is simply unscrupulous. He feels no obligation to do a real day's work. Yet I know the guy can do a good job, because for a long time he did. But in recent months, he's slipped for some reason and his whole attitude on the job has changed. Why, it's even getting to the point now where I think he's inducing other employees to 'goof off' a few minutes before the lunch whistle and go down to the washrooms and clean up on company time. I've called him on it several times, but words just don't seem to make any lasting impression on him. Well, if he keeps it up much longer, he's gonna find himself on the way out. He's asked me for a transfer, so I know he wants to go. But I didn't give him an answer when he asked me, 'cause I was steamin' mad at the time, and I may have told him to go somewhere else.

"I think it would be good for you to talk with him frequently. It'll give him a chance to think the matter through a little more carefully. There may be something that's troubling him in his personal life, although I've made every effort to find out if there was such a thing, and I've been unsuccessful. May be you'll have better luck."

Metal Company of India (Meco)

THE METAL COMPANY OF INDIA (MECO) was a large company located in an industrial estate in Bangalore, producing non-ferrous metal (NFM) casting and rolled products. The comapny had started over 20 years ago as a very small rolling mill, and had grown into one of the largest NFM rolling mills and foundries in India.

The rolling mill accounted for slightly over half of MECO's sales, but only 15 per cent of MECO employees.

The main cause of this disparity between sales revenue and number of employees was the particular technology utilized to produce rolled products. The rolling mill purchased non-ferrous metals in bars from primary producers at prices rigidly fixed by the government. The value added to these metals, as they were heated, passed through rollers to draw them into various end products, cooled, and cut to size, was a very small proportion of their purchase price. Only a few employees were needed to handle the materials from start to finish.

In addition, selling prices and final customers of the finished products were also completely controlled by the Indian Government through its Non-Ferrous Metal Controller. MECO could sell rolled products only through the government, not directly to the market,

This case, Metal Company of India (MECO) (C) was prepared by Professor Allen R. Cohen, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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though customers could request the Non-Ferrous Metal Controller to direct their order to a particular producer if they desired.

The overall physical layout of MECO can be pictured as follows :

ROLLING MILL SHED
FOUNDRY SHED
FOUNDRY SHED

ADMINISTRATIVE BUILDING

The rolling mill was housed in a long shed adjoining the two foundry sheds. Materials were heated at one end of the rolling mill, passed through the rollers in the middle of the shed, and came out the other end as finished products.

The furnace for the foundry was located almost directly between the foundry shed nearest the rolling mill and the rolling mill shed. Though in all other respects the foundry and rolling mill production processes were independent of each other, the foundry furnace output could be used in the rolling mill if it could not immediately be used for castings in the foundry. This was avoided whenever possible, however, since it was much less profitable than using the output for castings.

THE PRODUCTION MANAGER

Mr. Wilhelm Staub, a Swiss engineer with over 40 years of experience in roling mills, had been working on contract with MECO for 10 years as Rolling Mills Production Manager. (For a partial organization chart, see Exhibit I.) At a time when MECO's rolling mill was doing so poorly that it was going to be closed down, Mr. Staub had joined the company and almost by himself had re-designed, built, and installed the present mill.

Staub, recognized by everyone in the company as being a production "genius," nevertheless had a reputation for being "difficult to to get along with." The person with whom he had most difficulties was the Rolled Products Sales Manager, Choonilal Ranawat. When questioned about his relationship with Choonilal, Staub said:

> He is a sales manager he thinks, but if strong competition came he could never sell much. I have known buyers with tears in their eyes in his office begging him, and he was the hardest man on earth. We have lost orders on account of very high charges for non-controlled products.
>
> He thinks he is very clever if a party is *forced* to place an order with

us. He is disliked by everybody on his staff. His assistant, Mr. Bhimsen Gupta, is scared to death of him. I dont' know why he doesn't try to improve. He can't be anything but sick, sometimes he is so gentle and nice, and other times so mean.

Part of the problem is that he is not an engineer and doesn't understand the rolling mill. Let me give you an example. In 1960, the Non-Ferrous Metal Controller informed the re-rollers of a reduction in the raw material quota. In our case we were reduced by over 40 per cent. In order to get the most profits from the remainder, I suggested that we make a Product E mill from the Product D mill we had. The President agreed. We modernized in four months' time at a huge cost without stopping the production. I was lucky, and within a week we were rolling Product E. Previously we only had orders for the largest sizes in Product E. With a reduced quota of raw material, we could have done the larger sizes in Product E with the old mill, but we would have had to close down half of the time due to shortage of raw material. The modified mills were especially made for rolling Product E in smaller sizes. Of course, the production of small size Product E is lower than larger size by 20 to 25 per cent, but the profit made from rolling smaller Product E is double that from larger sizes. It was my impression that the Sales Manager was not in favour of rolling Product E. Finally I sent in writing a registered memo to the President, the Vice-President, and the Sales Manager. I explained why I was objecting to roll larger sizes. In brief, I was only working in the interest of MECO.

When I changed the mill over, the Non-Ferrous Metal Controller was informed that we could not accept orders for larger sizes. It was the Non-Ferrous Metal Controller who, since 1955, was requesting the re-rollers to roll more of the smaller size. But a few weeks after the starting of the new Product E mill, we began getting mostly orders for larger sizes. This could only have been done by a letter from here saying we would accept those orders, otherwise the Controller would not have sent us any.

The Sales Manager, as a scapegoat, uses this phrase to me, "I am a layman," whenever he has an argument with me. But he can't be a layman after 10 years as Sales Manager. That's a very poor excuse.

Choonilal Ranawat is not an engineer; he is selling special stuff without the faintest idea of what it is. He doesn't want to learn, and I've got no time to explain things to a layman. I can't explain technical problems to a little child. I have to do it in my own terms, or my chain of thought is broken while trying to think of a simple way to say what I want. You've got to have an engineer in a sales organization if you want a sales organization. Choonilal may have a friend approaching him for something and he won't realize how difficult the job is. It's forced on me. After some bitterness I'll decide to do it, but who'll pay the company ? Someday I'll be replaced and my replacement will be afraid to go against the brother of the boss. Then the machines will break down.

And another trouble is that the Sales Manager comes around ordering my Foreman or Supervisor. It is not his job. He will come and say to a man here, "Why are you doing that ?" after I gave the man an order to do it.

Another example. It happened three months ago. We started rolling for export 14 different sizes. It was a lot of small orders the first time for export. You see, we can only send the first class material abroad. My plan was to roll three sizes in each rolling programme. After the first programme was rolled, inspection was done the following day, except for a sample taken during rolling. That's our usual procedure. For the finished products, inspection is made by an Inspector the day after rolling. In this case, he rejected 10 tons of material the next day, because it was not of export quality. The rolls had been changed already and we were on the next programme work. When the Sales Manager heard about the rejection, he chewed out the Inspector without seeing me first. I complained to the Vice-President, who is also a member of the family, you know, and being an older hand at production, I had to explain the inspection procedure to him. The Inspector could have loaded the defective right along with the good material and we wouldn't know it except when it arrived in Indochina. He could have been dishonest, and I told the Vice-President that they were training him to be dishonest. In any case, the man works under the Rolling Mill Production Manager, not the Sales Manager.

The Sales Manager is sick, he is not in good health; he can't handle his staff or workmen. This may shock you but I have seen him ordering around a contractor who does our bundling. The contractor did a job six months ago, yet the material has not been dispatched from here and the contractor hasn't been paid. The President doesn't know about it or he would never allow it. I caught Choonilal telling a lie in my presence. I can forgive him for telling lies because he is not healthy, but I can't understand Ramlal Ranawat standing by.

The Sales Manager is the most inconsiderate man in the whole of MECO. He only concedes and does things as a favour. But we should all work for the firm only. We must try to get the maximum amount from the material, not by increasing the prices, but by manufacturing quality products. That must be the sole objective of everyone. Sometimes I want peace and quiet, specially for trying to design something new. When I have been at war for a fortnight, I can't concentrate properly and can't do the kind of creative job I want to do.

The thing that is wrong with Choonilal Ranawat is that he wants me to make what he can sell, instead of his selling what I can produce. If I explain something to him, he will go and ask one of the men on the floor, just to see that I am telling him the truth. While he was on vacation, the Vice-President asked me to try rolling some quantity of Product B. Even though I had told Choonilal many times that it could not be done, I decided that I would do it as a favour to the Vice-President. When Choonilal came back from vacation, he asked me about Product B. He said, "You have been doing so many other things, why can't you do this?" I said to him, "It is not good quality material, though if it were imported it would be O. K., but as it is it will not work." He kept giving me an argument and finally I said, "Let's have an experiment; we will take an equal quantity of imported metal and local metal, we will roll them on the same mill with the same roll setting. We will roll 10 tons of the same section and I can guarantee a 50 per cent rate of rejection on the local metal. I will leave after the first six are started." We finally did this and we had a 50 per cent rejection, just as I had said. He thought that I just didn't want to do it.

Case Writer : Have you rolled them since?

Staub : Yes, we will be rolling them. But we have also ordered imported raw material from the primary producer. We haven't rolled since. I'll never roll the second best. It took me thirty years to make my name and I won't spoil it in one day. I'll never make somethng that "will do." I think I have managed to persuade my people to think that way. If we do not roll first quality, I can't sleep at night and I make my wife's life a misery. I think it is the same for my men. If we want first class technicians we must have pride in our work.

A final problem comes because every month the Sales Manager and I have three days' discussion to make a programme for the next month's production, but then we may wind up changing the programme two or three times during the next month. I finally suggested to the Vice-President that we should have a quarterly programme. I joked with him and said that we should have one file for the programmes and one for the revisions. You can't run a shop properly that way.

Case Writer : A quarterly report will help?

Staub : Oh yes.

Case Writer : Won't that mean alterations?

STAUB : If we have two weeks' notice, then it is not bad. Now it is two days notice that is costly. It means that we have to work overtime and it's uneconomical to do so.

Not only for export but for home products, MECO should have a huge store room so that the mills can be used at the maximum capacity. Then, the Sales Manager won't interfere with my part, except when the stock is too low for an order and we have to make more. I want to roll the best things first because those are most profitable. We are now fairly productive, but if an alteration in relation between Rolling Mills sales and production would come about, it would be better for MECO . We are thinking that should tough competition come, the point of view of sales should be quite different. It should change now and not when the competition comes. Here, the customer is always wrong. One day he will be right again and will make us feel sorry for our attitude at the present.

THE SALES MANAGER

The Sales Manager, Mr. Choonilal Ranawat, had a different view of the relationship between himself and Mr. Staub. In an interview, he explained the requirements of his job, and then described his relationship with Staub:

My real job starts after the indents arrive from the Non-Ferrous Metal Controller. After they are received, we make the financial arrangements with the company by a letter. The Controller has laid down the procedure that we should have financial arrangements made within 15 days. The Government of India gets 14 days' credit, but all others pay in advance by a letter of credit or deposit 10 per cent of the value of the order in advance.

Despite the rules, we often make an accommodation for orders of large amounts. Customers have to call on me and I don't go down to their office, because it is a seller's market, though often I will go if I am requested. We cannot commit ourselves on delivery time because the NFM Controller issues orders. We do, however, try to accommodate our customers when we can. For example, we may speed up our delivery times if a customer is in a hury, by slowing up deliveries to another customer who we know has enough inventory in stock.

I seldom see customers in person at their office. They call on me and especially the local ones come to the office. Sometimes I may go to a government department, but most often we settle on the telephone. If bills are not paid in time I then may go to a government department or perhaps will discuss delivery time with them. But there is very little aggressive sales work to do because of the controls. We are trying to develop our Product E business, so I call on customers for canvassing, but not too much. In our new plant we will be concentrating on Product E and we are developing customers now. There are 30 to 40 big users on the list and they have all been contacted by me already. We do maintain contacts with them, especially with those in the Northern part of the country. A few years ago I met all of them but now I do not frequently call on them.

The producers of raw materials are also regulated by the NFM Controller. Each six months we submit indents, based on our capacity for the raw material that we will need. The main problem we face is supply, despite the Controller's directive to primary producers to keep us supplied. There is a short supply of raw materials and everyone is complaining all over the country. One of my main jobs is to always keep a watch on the supplies of raw material and to keep in touch with producers by phone, letter, and in person. In addition to not getting enough raw material, we often do not get the right sizes. Consequently, we have to be constantly on our toes chasing the producers to get the right sizes. But this company will never indulge in bribes to get raw material.

Mr. Staub, who is in the Rolling Mill production side, and myself have to work in co-operation. We jointly frame a monthly rolling programme. Then I have to make sure that we are provided with sufficient raw material to carry it out. In addition, I decide the customer priorities. I make an outline of the rolling programme and put it up to him. Then I take his suggestions, we discuss them, and then alter the programme. I continually know the order position and our commitments. Finally, we take the Rolling Programme to be signed by Ramlal Ranwat, who just signs; he hardly asks questions about it. Six months ago or so, Devilal Ranwat, Ramlal Ranawat, and I decided that Staub, Ramlal, and I should meet together to finalize the rolling programme because of Staub's and my difficulties up to then. Due to time pressures, usually Staub and I meet together, and Ramlal signs. That way Staub feels that top management is issuing the programme, not the Sales Manager. In the eyes of his subordinates, he should not feel small that he is acting on the orders of the Sales Manager.

CASE WRITER : You have troubles with Staub ?

CHOONILAL RANAWAT : Yeah. Often. Staub is a genius at production; he made much of the mill automatic by himself. But at times he doesn't react favourably. If we are facing trouble then he will be unreceptive. For example, if I am trying to get him to do something, he will make excuses and say that he can't do it, but that if management orders him to, he will, etc. Once we start having an argument, then he will suggest that we should meet with the Vice-President to resolve it. Sometimes he wants to go directly to the President because he says he doesn't want to be blamed if the prodution of that item is no good.

In a meeting he will be different. He will explain the problems in doing what he has been requested, but then the President understands his style and knows how to handle him, and will say, "O.K. I admit the problems are there but I know you can solve them." In most cases when he is with the President, Staub says that after a few days he can solve the problem. It usually turns out that practically everything we want is done.

CASE WRITER : When does Staub give you an argument ?

CHOONIAL RANAWAT : If he is not in a good mood, or upset with a mill problem, even if I come to him with a simple programme or the same programme as the past month, he will make a number of excuses. I may be at sea as to why he thinks it difficult, but I can't argue at length or he will feel badly. I may point out once that this has been done in the past, but he will go on making excuses. Either of us then says, "Let's talk to the President or the Vice-President." I then make all the arrangements for a meeting and brief them on what it is about. He's somtimes upset with a problem in the mill, but then if there is no breakdown or stoppage at that time he may agree at once to a programme.

May be, for example, he is not satisfied because he came out of a meeting previously with the President and the President might not have given him his way. He won't say that to me but may be that's why he will give me a hard time.

At times the President calls me and says to talk nicely to Staub because, "Nowadays he is not in normal mood." Like once Staub had some problem with his housing and was very upset. I'll say "But Staub and I are getting along fine; we met this morning and he was very agreeable," and the President will say, "Yes, I just wanted you to know." The Vice-President may give a hint also to me with the idea of going easy on Staub. He is actually a very nice man and good at heart, but very moody. He changes his mind easily. When I tell him that, he says, "Yes, it is my mind and I can change it."

I am puzzled how to get along, how to get the work done, which is after all what we are both after. I may get confirmation from him and then write a letter to the customer making a commitment, and then two weeks later, Staub says to me, "I am sorry that I cannot do it; if you want it done and think it can be done then why don't you solve this problem for me, or otherwise I can't get it done."

I say to the President, "You tell me to be more dynamic and to develop new business, but when I do it and then Staub tells me that it cannot be done what can I do ?" Many times I have had to drop new things because Staub said he couldn't do them.

For example, we are always short of raw materials. The Vice-President will tell me that if there is any possibility of getting imported raw material belonging to customers rolled here, we should welcome the opportunity. So I develop contacts with the right parties and when they finally do say that they want their imported material rolled, I discuss the requirements with Staub and he will say that it is possible. Then I proceed to finalize the proposal and at this stage Staub might come out and say that there is a technical difficulty. Then everything will go flat; my efforts will be in vain, fruitless. This is a part of development work.

Similarly, we have some extra special-quality material which we want to liquidate. It is suitable for rolling Product B. I'll make my best efforts to get a customer for this and then with continuous efforts I succeed and get orders in high quantities. When I go to Staub, to my surprise, I will be told that recent modifications in the mill prevent making these. I feel awakward with the customers then, and frustrated, so I go to the Vice-President.

CASE WRITER : Do you always go to the Vice-President rather than the President ?

CHOONILAL RANAWAT : Yes, I always go to him first and to the President only if he is not there. Then the Vice-President will hold a meeting with Staub, who will be asked to explore the possibilities of rolling the items. Then he will consider it. But everything is uncertain for me. I will only make reference to it in passing then. If he is in a good mood, he will say that it is possible, but it will take two to three months to develop it, and meanwhile, I am stuck because the customer is there. It is a very peculiar way he works. I am not saying this to run him down but giving you facts. Now we are on good terms though we were not in the past. Now with the passage of time we have known each other enough and get along well.

CASE WRITER : Why didn't you get along before ?

CHOONILAL RANAWAT : He never used to be consistent. One week he would say one thing and in the next week another. That put me nowhere. I had to say not-nice things to him to find out what was going on. Now I don't insist too much, and if he won't listen I will report to the Vice-President. With his intervention, the disagreement will be settled. Previously I was trying to settle it myself, I thought we should both work for the benefit of the company and jointly come to decisions but now friction is avoided because I don't try to convince him much, I won't repeat my points with him. I just ask questions about the subject which show what I think. Sometimes he will say at the end of a conversation, "I think I can do it." I don't press him on it and then he will call me the next day and say it's possible. Only when he is stubborn or won't think do I report to the Vice-President about the problem. Not as a complaint against him but only in the chief interest of the company. Everyone in the mill fears Staub and won't make decisions. That is not a healthy situation, Subordinates should not fear so much, it stifles their thinking. Management should do something about it. Ramlal and Devilal Ranawat are conscious of it. I've told them many times, but they can't get a suitable man.

Staub is at a high level and the others are very junior; that's why it happens. Staub should be told that in his absence, if someone at the same level makes a decision (like me or the Foundry Sales Manager), he should respect it. He won't react favourably to a decision made by any other person. He should realize that decisions are taken in the larger interest of the company.

Sometimes Staub causes difficulties with customers too. A few weeks ago, a customer came here with a complaint and Gupta, my assistant, put him in touch with Staub. Staub blew up at the customer and was furious with Gupta. Devilalji said, "Don't put customers in touch with Staub." I said, "I agree usually, but it's sometimes necessary for technical matters." He said, "If it's necessary you can," but he wasn't sure—also he said that, "Gupta should not talk much to Staub, you should." It wasn't a directive, because we're not in agreement. He felt that if it is an urgent paper, a clerk may hand it over to Staub, but not talk with him. But the cost accountants have to talk to Staub sometimes.

CASE WRITER : Do the cost accountants usually have difficulty with Staub ?

CHOONILAL RANAWAT : They are nice boys, and they know Staub's temperament. They are too junior for friction, but often he won't co-operate with them. Then they come to me and ask my help. Or they will come to the mill when I'm going.

CASE WRITER : He won't voluntarily co-operate ?

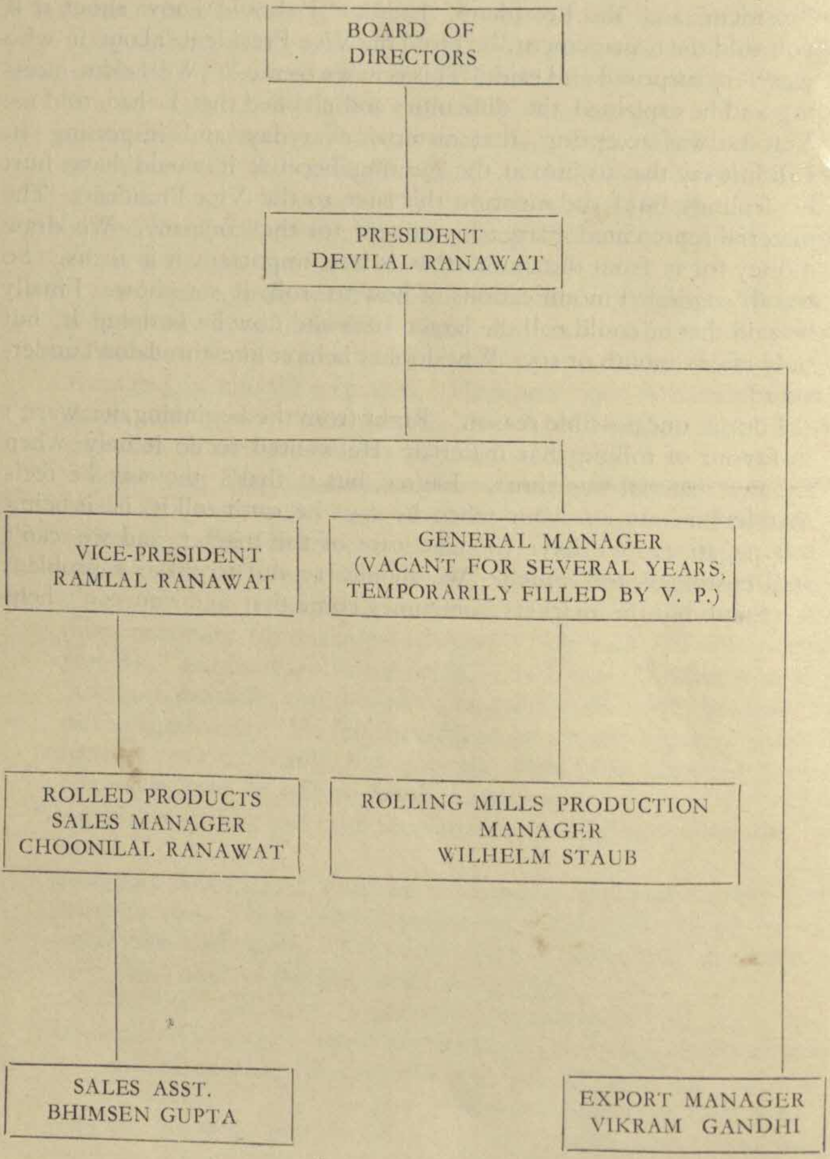
CHOONILAL RANAWAT : Staub says (and he is right), "I give you an estimate of output. If output is less, you come to me and ask for an explanation." He doesn't like that "exam" or whatever you call it. He feels that we try to run him down over lower output, and he doesn't like it. But it depends on his mood. At times, Staub makes comments or observations that hurt Gupta.

I'd say that it's a very major problem here. Very often we have to hold meetings. Sometimes he will even come out with something not known to the management. Once when I wanted him to roll some material so we could dispose it off, he claimed that it could not be rolled here any more and that he had informed the Vice-President and the President. I said, "I should know about it if you told the management." I told the Vice-President about it who was very surprised and said, "This is news to me." We held a meeting and he explained the difficulties and claimed that he had told us. Yet, he was accepting that material everyday and inspecting it. I didn't say that to him at the meeting because it would have hurt his feelings, but I did mention this later to the Vice-President. The material represented a large investment for the company. We draw money for it from the bank, that is how important it is to us. So we all suggested modifications of how to roll it somehow. Finally he said that he could roll the larger sizes and now he is doing it, but only after a month or so. Why does he behave like this I don't understand.

I do see one possible reason. Right from the beginning, he wasn't in favour of rolling that material. He wanted to do it only when the raw material was short. I agree, but if that's the way he feels then let him say so. But when he says he can't roll it, he is being too negative. We have to take care of the market, and we can't stall customers too much. We should try not to make a problem for Staub but the markets sometimes come first and you can't help it.

EXHIBIT I

PARTIAL ORGANIZATION CHART


BOARD OF DIRECTORS
PRESIDENT DEVILAL RANAWAT
VICE-PRESIDENT RAMLAL RANAWAT
GENERAL MANAGER (VACANT FOR SEVERAL YEARS, TEMPORARILY FILLED BY V. P.)
ROLLED PRODUCTS SALES MANAGER CHOONILAL RANAWAT
ROLLING MILLS PRODUCTION MANAGER WILHELM STAUB
SALES ASST. BHIMSEN GUPTA
EXPORT MANAGER VIKRAM GANDHI

(*Source*: Prepared by the Case Writer on the basis of description by executives.)

Blackman-Dodds*

THIS CASE consists of an interchange between a superior and subordinate in a research laboratory. The subordinate, a newly hired professional research worker, made an appointment to see the director. The following interview took place.

Dr. Richard Dodds, a physics research worker, entered the office and showed his superior, Blackman, a letter. This letter was from Prof. Wilkin of another research institution, offering Dodds a position; Blackman read the letter.

DODDS : What do you think of that ?

BLACKMAN : I knew it was coming. He asked me if it would be all right if he sent it. I told him to go ahead, if he wanted to.

DODDS : I didn't expect it, particularly after what you said to me last time. . . . I'm really quite happy here. I don't want you to get the idea that I am thinking of leaving. But I thought I should go and visit him—I think he expects it—and I wanted to let you know that just because I was thinking of going down, that didn't mean I was thinking of leaving here, unless of course, he offers me something extraordinary.

BLACKMAN : Why are you telling me all this ?

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*This case, Blackman—Dodds, HP591, was prepared by Richard C. Hodgson, Research Assistant, under the direction of Professor Abraham Zaleznik of the Harvard University Graduate School of Business Administration as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1964 by the President and Fellows of Harvard College. Used by specific permission.

DODDS : Because I didn't want you hearing from somebody else that I was thinking of leaving here because I was going for a visit to another institution. I really have no intention of leaving here you know, unless he offers me something really extraordinary that I can't afford to turn down. I think I'll tell him that I am willing to look at his laboratory, but unless there is something unusual there for me, I have no intention of leaving here.

BLACKMAN : It's up to you.

DODDS : What do you think ?

BLACKMAN : Well, what ? About what ? You've got to make up your mind.

DODDS : I don't consider this job too seriously. He is not offering anything really extraordinary. But I *am* interested in what he has to say, and I would like to look around his lab.

BLACKMAN : Sooner or later you are going to have to make up your mind where you want to stay.

DODDS : That depends on the offers, doesn't it ? (sharply)

BLACKMAN : No, not really; a good man always gets offers. You get a good offer and you move, and as soon as you have moved, you get other good offers. It would throw you into confusion to consider all the good offers you will receive. Isn't there a factor of how stable you want to be ?

DODDS : But I'm not shopping around. I already told you that. He sent me this letter, I didn't ask him to. All I said was I think I should visit him, and to you that's shopping around !

BLACKMAN : Well, you may choose to set aside your commitment here if he offers you something better. All I am saying is that you will still be left with the question of you've got to stay some place, and where is that going to be ?

DODDS : You really don't think that I could find a better job than the one you have offered me here ?

BLACKMAN : I don't know. I'm not thinking about that.

DODDS : How would it look if I were to leave ?

BLACKMAN : To me, if you wanted to go, I'd say fine, if that's what you want. But frankly I think there would be a few raised eyebrows if you were to leave now.

DODDS : But I'm not shopping around, I want you to understand that.

BLACKMAN : You've got the problem of all young men who are sought after, you've got to decide what you will accept and what you won't accept.

DODDS : Look, I came in here, and I want to be honest with you, but you go and make me feel all guilty, and I don't like that.

BLACKMAN : You are being of honest as can be.

Dodds : I didn't come in here to fight. I don't want to distrurb you.

Blackman : I'm not disturbed. If you think it is best for you to go somewhere else, that is O.K. with me. We can get another plasma physicist any day, just as good as you. They are standing in line to get in here. What bothers me is how restless you want to appear to me and Wilkin. For one thing, you've got everything analyzed out in terms of what you want; tenure, appointment, and space. Things like that.

Dodds : That's obvious. I can't understand you. You really think that no one will ever be able to make me an offer that will make me want to leave this place.

Blackman : All I am saying is that it looks funny. You asked me how it would look, and I'm telling you it would look funny so soon after you getting fixed up here.

Dodds : Well, I was just trying to be honest, and. . . .

Blackman : (Interrupting) All the jobs you get offered at this stage in your career are the same. They are all the same. One may give you a little more salary, but it will have a lousy lab. Another may offer you tenure and a higher title, but you would be dead in 10 years if you went there. What you should be looking for is an opportunity to do work and to develop in an environment. Your colleagues, the really important ones, don't give a damn whether you are a Junior or Associate research worker. Don't get me wrong. I don't want to hold you back. If you feel it's best for you to go, I wouldn't want to hold you here under any circumstances. I just want to give you some advice.

Dodds : But I don't see what this has to do with me. All I said was I would consider his offer if it was so good I couldn't afford to turn it down. Do you think I would turn it down even if it is a better job ?

Blackman : All I'm saying is maybe it's too fast.

Dodds : What of it ? Are you telling me that a young person coming up shouldn't take the best job offered to him ?

Blackman : What should they take ?

Dodds : Young people should take the best jobs they can get, and go where they want.

Blackman : Yes, but not too fast.

Dodds : How fast ?

Blackman : I don't know. Enough time to settle in and do a job of work.

Dodds : One, two, three years ?

Blackman : It depends.

Dodds : When should I be thinking of leaving this laboratory, then ? When do you think would be the best time for me to go ?

BLACKMAN : I think it would look like Dodds had a lot of opportunism and self-interest. You know what I mean ? Like he was restless. It would not look good.

DODDS : I don't understand you. I came in here to be honest with you, and you make me feel guilty. All I wanted was to show you this letter, and let you know, what I was going to do. What should I have told you ?

BLACKMAN : That you had read the letter, and felt that under the circumstances it was necessary for you to pay a visit to Wilkin, but that you were happy here, and wanted to stay at least until you had got a job of work done.

DOODS : I can't get over it. You think there isn't a place in the world I'd rather be than here in this lab. . . . .

Mr. Shekhar*

WHEN I GRADUATED from a professional Institute, I was looking for a job where there was a scope to innovate, to try out, to create, and to make business more meaningful and productive.

Well, besides this I had a set of moral values which I think a majority of people have. I should not cheat. I should give the best of me. I should keep the organisation's interest at heart and uphold it even at a risk to my own interests. I should give, and expect, a fair deal. They have been tried during my job, and I have got bruised in order to protect them, but I guess I still have them with me.

I met Mr. Dev Sharma in the office of Data Processing Consultants (DPC) to whom I had applied for a job after graduation. Mr. Sharma was present while I talked with the manager of DPC.

He listened for a while, then started asking me questions. I answered them. I must have answered them well, because he asked me to see him next day, for he may have a job for me. He asked me whether I knew who he was. He had been introduced to me as Mr. Sharma but I did not know who the Sharmas were then. He said his family owned Sharma Industries.

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* This case, Mr. Shekhar, was prepared by Professor Sudhir Kakar based on a student report, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright, © 1969 Indian Institute of Management, Ahmedabad. Used by specific permission.

I went to his place the next day. He looked into my resume. He asked me about the FORTRAN programme I had prepared for a course. He asked me what I wanted from my job. I told him I wanted an opportunity to apply, to try out what I had learnt. Also I wanted to achieve. He was leaving for Bombay that night. He said he would get in touch with me soon.

After about two days, he contacted me through his Ahmedabad office, saying he had a job for me and whether I could contact him at Bombay or Poona.

A day after I reached Bombay, the DPC offer came by. It was a job I would have taken but for Mr. Dev. I was to see him the next day.

When I met him, I showed him the DPC offer and said that I would take this job if he would equal the DPC offer. I did not want anything more, though I could have bargained. I liked what he promised me to give in terms of job opportunity and his active interest in me as in contrast to the "Oh, so you are one of those" approach of many interviewers I had come across.

Mr. Dev said he appreciated my ideas about the job—he too shared them, having graduated from California. He said he would equal DPC terms. He would put me in their textile division. There was one thing: Instead of two years' bond I would have signed with DPC, I shall have to sign a three and a half years' bond. He personally did not believe in contracts, he said. But it being the convention, he couldn't do much about it. I said I trusted him, so I would sign this contract.

I went over to the Sharma Mills next Monday. I saw Mr. Dev. My immediate boss, the EDP (Electronic Data Processing) Manager, Mr. Kelkar, had not come that day. Mr. Dev gave me a file of the machine accounting system that had been proposed by the Data Processing Consultants. A peon took me to the room where the EDP department was sitting. It consisted of only one person, Mr. Kelkar, and he was absent. I spent the day alone, going through the file. My job had begun and my first assignment was to help get the machine accounting going.

Next day I met Kelkar. We hit it off well. He took me through whatever had been done. And then in about a week's time I was busy getting coding done for accounts job. Meanwhile, I had started learning about the machines from Kelkar and the manuals. I also spent a great deal of time in Accounts, trying to figure out how they went about accounting.

There was progress. By August end we had successfully completed trials for primary books. I was in it right up to my neck.

I did not come much in contact with Mr. Dev. To begin with, he had asked me to submit to him a report on whatever I was doing.

I used to give it to him regularly. Then once he said that I had not given him a description of such and such. Kelkar was there and he also used to go through these reports. He immediately said that I had given that description in a report I had handed in about a week back. That was the end of report writing for me. No more reports.

That was also the time when I first came across the nasty side of Mr. Shah, the Chief Accountant. The first primary book trial was over and the switch over to machine accounting for that book was approved. He called me that evening and said, "Mr. Shekhar, you told me you have taught how to code to my clerks, but they say they don't know it yet." The tone was bullying—almost menacing. "Who are they ?" I enquired. He called a man in. I had heard quite something about Mr. Chief Accountant, and knew that this was one of the persons he had brought along with him from his last job. "Have I not taught you the coding three times ? Did you not say at that time that you have followed it and can do it on your own ?" I also called the other two clerks whom I had taught. Mr. Shah's boy stammered, said at the time he had followed and now he had forgotten it. Mr. Shah mumbled something about there being some misunderstanding.

That evening I told Mr. Kelkar about it. "Petty chap," he said. Well, It was nice knowing Mr. Shah ! But this was not the only occupational hazard of being the EDP officer at Sharma Mills.

In our August trials the ledgers did not tally. Nor did they tally for September. By now I was confident that I knew a fair deal of Accounts. I asked Mr. Kelkar whether I could try out the improvements I had in mind. He trusted me a lot by now. I had taken a lot of worry off him about accounts trials for primary books and made them click. He even told me that if I tallied the ledgers, he would recommend that I be confirmed at once. I worked at the control system I had in mind. It clicked. Kelkar did recommend my confirmation. That it did not come off is another story.

There was an aspect to this confirmation business. EDP Department was growing. I had already two assistants. And I used to get them working with purposefulness and devotion to work. I have a philosophy that as a supervisor, I have to be responsible to both my employer and my staff, and to see that neither party harms the other's interest. Besides, I believe in trusting a subordinate if he proves his worth. I also take personal interest in him and care for him, without disturbing his privacy. And I also believe in practicing before I preach. I work hard, before I ask them to work hard.

But then Mr. Dev hired a supervisor called Raman for the proposed Poona installation. Kelkar had advised against having this man but still he hired him. And then, since the Poona installation was not likely to come up soon, (it has not come up yet) he put him in at Sharma Mills.

Raman somehow carried the impression that he could take it easy. I did away with it by giving him work. He wouldn't do it and almost dozed off on the job. He wouldn't follow the simplest discipline such as signing the log while operating the machine. I reported this to Kelkar. This was bad for the morale of my boys who were grumbling about this man enjoying himself while they slogged. Kelkar investigated and found the charge to be true. So he sent Raman back to Poona, pending the final decision of Mr. Dev who was not coming to the Mills in this period. Raman then went and complained to the manager of the consulting firm through whom he had come and to whom he was related, about me.

So as a result, this manager wrote to Sharma Mills that since Mr. Shekhar does not know about machines, since he tampers with systems proposed by the consultants and since he treats his staff high-handedly, he should not be confirmed. Mr. Dev was away during this period. Kelkar, I think, was not informed of this letter, and I was not confirmed till quite sometime. So that's how it turned out—you go and do company's work and company punishes you for it. And nobody bothers to understand why you did it. You don't even know what is happening, so there is no question of your defence.

Soon after, Mr. Shah's assistant, Mehta, who had worked with me was asked to resign. He was a quiet type of fellow, who had cooperated sincerely in mechanising accounts and he was a real worker. I still have a feeling that his cooperation with me in mechanising had something to do with his leaving. Mr. Shah did not quite like him working with me and used to grumble about his wasting so much time with me. After I came closer to Dev, I told him what I really felt about the whole affair. He admitted as much that this may be partly true, though he stuck to it that Mehta was incompetent. Sometimes people do not see the truth even if it favours them.

I think it was some time in October 1967 that Mr. Kelkar made his decision known that he would leave Sharma Mills. He did not quite like the way Mr. Dev used to intererefere in the small affairs of EDP, he said. Kelkar also said that Dev had not given him the freedom and authority he had promised to give him as the EDP manager of Sharma group of companies. He also said that even regarding emoluments, Dev was balking in paying him the conveyance allowance he had promised.

Meanwhile, immediately after Diwali, Dev fell sick and did not come to the office for more than one and a half months. The mill was ripe with rumours—all kinds; some said he was barred by the partner of the Mills with whom his family had disputes. Some said he was off his head. All kinds of rumours.

I had geared up my boys to catch up with the schedule laid down by Dev and put the department on a normal footing, so that new projects could be taken up. In November we caught up with the schedules, everything was out in time though inputs for machine work were quite late. But Mr. Shah had not thought this over. May be he took me for a chicken. Or else, he was too sure of himself. I came to know from his own assistants that he was boasting that before Dev comes back , he will finish off EDP. His first trick was to go and complain to the Managing Director, Mr. Inder Sharma, that EDP was causing great delays in a supplying the account books. When the complaint came to me, I countered it by facts. Every incoming document from accounts was recorded for time of dispatch. And both receipt and despatch entries were validated by signs of personnel from Accounts department. I countered Mr. Shah's charge by producing the records and showing that the three-day delay he complained about was caused by the three months delay in supplying the imputs by Accounts. Shah could not answer this. But this infuriated him. And so he spent enough time in cooking up his charge number two. EDP ledgers had many mistakes and EDP should reprint them. This meant that all the work the EDP had done in the three months since its inception was to be redone. We had worked round the clock to catch up. I knew the work was quite good. And if I succumbed to this threat, that would finish off the spirit of EDP I had instilled in my boys.

I showed Kelkar that these were not serious mistakes—no mistakes from accounts angle except one summary wrongly posted because accounts gave a wrong code. I pleaded with him to go and fight this out.

He went to the Managing Director. Shah out-shouted him. Kelkar was anything but a bully. Managing Director gave his decision: reprint the ledgers.

Kelkar came and told me. I said I won't do it. I had been responsible for the birth of this department. I had nursed it. I had worked days and nights to get it going. I had made men out of my boys. I had made them trust, believe in management, by trusting them. I had made them work sincerely and whole heartedly around the clock. I had my obligations to them, and also to my company whose interest I had to uphold. I had to see that the company did not do something which might make it suffer a loss, perhaps a big loss, in its investment in EDP. I refused to destroy what I had built, even if that meant disobeying the Managing Director's decision. I had no use for such a narrow definition of discipine. I told Kelkar so.

Kelkar tried to reason with me. He said he appreciated what I felt. He also said that he appreciated the work I had done for EDP—and he had suggested to the Managing Director and Chief Executive that after him, the department should be handed over to me. He had told me this before and it was damn honest and kind of him. He also felt that Shah had played a dirty game, but since the decision was already taken by the top boss, and he had been told specifically that money was no bar, he thought we should go ahead and reprint the ledgers.

I said I believed it to be a part of my duty as an executive of the organisation to protest against a harmful decision taken on the basis of misinformation. He said, "Why should you bother if management wanted to waste its money?" It was not only him, but quite a few others too who said the same thing. I think this is what is wrong in the whole make-up of the executives. Management hires excecutives to help it make correct decisions and correct itself when it takes wrong decisions. Business is not a medieval army and there is no room in it for the discipline of the "Charge of the Light Brigade" type. May be Kelkar was right in saying that management had a right in wasting its money. But I also think it is the duty of the manager to stop the management wasting its money, even if this requires him to fight it out at a risk to his own career. At least, this is what I believe. I told Kelkar I would like to protest against this decision.

He said that the decision was final and could not be changed. He said I was over-worked and tense and should take some leave. He would arrange for me to go on leave for a week, paid by the company.

So that was it. But I didn't like to be away when they destroyed what I had put up. I decided to take a risk. I decided to contact Dev. I was not sure how he would react. The Mr. Dev Sharma, I had experienced after joining, was not quite the man I had met at Ahmedabad. But I still had my faith in what he had said when inviting me to join the company. I decided to trust Mr. Dev. I contacted him on the phone and told him the story. I told him what I felt about the consequences of the decision to the EDP and also to the organisation. His reaction was that he would come over to the mills. Just that, nothing more.

When I went to the mills that day I did not know what was going to come out of it. I had gambled. That was all.

After about half an hour, the Chief Executive called me up. He was furious. "Who phoned up Dev?" he asked. "I did, sir," I said. "Who asked you to be overwise?" he said. He said a lot of things. I was sabotaging the management's decison. I listened. What else could I do? Here was a man quite senior to me. Obviously angry for reasons I did not know. What could I say to him? I listened, and after he was through with me, I came back to my department.

Everyone was quiet. Everybody stared at me. Maybe I was through with this job. Okay, this was it then.

In the afternoon Dev came by. He called me in. He reproached me for being late and not being in time. No mention of my phone call. No mention of what he was going to do. All he did was to scold me for being late. Did he not see I was staying up late till 8, 9, 10 at nights ? Why did he grumble about my being late for five minutes sometimes when he knew I worked overtime for hours ? I could not bear the tension any more. I could not just stand it any more. I broke down and cried. I had gone through hell for him during the last couple of days. I had staked my job on him, believing him. And here was this man—does not say a word about the problem and talks ungratefully about my being late occasionally by five minutes ! Yes, I cried.

He said I was disturbed and that he would talk to me the next day. He left that day, still leaving a big question mark behind him.

Next day he came. He questioned and questioned. I put before him all the data I could muster together. Ultimately he saw the figures for himself, and convinced himself of the correctness of my stand. He said he was going to take over EDP from Kelkar immediately. He moved in Kelkar's place. Kelkar was given over systems development work. Dev collected and sorted out all the data I had gathered, and presented it before Mr. Inder Sharma. He showed Inder that the mistakes were not of the type which would invalidate the ledgers from the accounting angle and that the major responsibility for them lay with accounts. As a result, the decision to reprint the ledger was revised; the ledgers were not to be reprinted, but all the mistakes to be corrected manually. Only the ledger sheet for wrongly posted control account was to be reprinted.

I was asked to see that manual corrections were done properly in ledgers. It was not my job. But I did it—I did that tiresome job, because Dev had revitalised my faith in him. I did it because I was happy that my stand had been vindicated.

Thus, at last, I was confirmed. I only wished then that at least he had redrafted my confirmation letter he had dictated before he went away after Diwali and removed the mention as to how I should try more to get along well with people and also as to not to tamper with the systems from their consultants. He knew better by now. He should have.

There was also another thing that disturbed me. He said that he would not discuss my increment then. I reminded him of his promise to consider it if I gave a good performance. He shrugged it off saying that he said this to everybody. That was mean of him. But I did not say much then. I should have been wiser.

After that it was work again. Work late, work hard. Do the work some one else is supposed to do. But I did it. My boys did it. Because our trust in Mr. Dev was reaffirmed. Things went well for quite a while. To work outstanding dues, I suggested a comprehensive credit contról system. That was some work, some study I had to put in. He bought the idea and gave me a prize of Rs. 200. There was only one thing about the prize—it was mine only if the scheme would work out. That left a bitter taste. I did not put in all that work for the prize but because I really cared. Why make such a condition? If you don't think it likely to succeed, don't buy it. But by using it, you would save thousands every month. So why such an irritating "but" and "if"? But I did not say all this to him then, as it would have been unpleasant. I mentioned it later on to him, and sure enough, he misunderstood it. By the way, this prize was declared in January and I got the money in June. Could he not think of an incentive which is not like a disincentive?

Things went on this way. We worked together, though on and off he would be nasty. Thus when Kelkar came out with an elaborate proposal, I was asked my opinion. I thought the system to be clumsy and burdensome and said so, "You are jealous," he said. Okay, jealous! Later on he admitted the validity of what I had said about the system.

But those were the times when he listened to me, he confided in me. I could shake him off the machine if he would pester my boys. I could get overtime for my boys at last. He listened to my ideas—such as making top management reports out of control data for accounts job.

But then in stepped Roy. I must tell more about Roy here before I proceed further. I first came to know about Roy sometime in August when Kelkar asked me whether I had any objection in accepting Mr. Roy who was not as qulified as me, as my equal, as an EDP officer. I didn't like to hurt anyone's prospects, so I said no, certainly not. He was an M. Sc. (Statistics) with some computer experience. About conventional machines, he was ignorant. I used to lend him books on production planning. My impression of him till 1968 was of a quiet, unoriginal (he would willingly play second fiddle to anyone) and uncooperative person. When we used to stay back, he would sit quietly reading a book but wouldn't cooperate even if I asked for his help—always finding some excuse, sometimes even saying that what I was doing was my job. I had mentioned this to Kelkar, but he said I should not worry myself with such petty things and I didn't.

In February, the spinning system Roy had worked on was to be put on the machine. But right on the day of trial, Mr. Roy was to leave for his marriage. Dev was worried about the system trial.

There was opposition from the spinning master and the chief executive. Dev was shaken up. He asked me whether we should not change our decision to discontinue manual reports in spinning. I asked him not to worry. Roy left on the morning our trial began. We worked up to 11.30 that night. That went on for five consecutive days and nights. On the sixth day, he had a show-down with the spinning master and the Chief Executive—the trial was successful. EDP took over spinning work. Recently, when he questioned my intentions about Roy, I reminded him of this. He said there was nothing great about it. My colleague had left for his marriage and I had filled in his place. I wish he could remember that since I worked those nights, I could not see my girl friend who was in Bombay just to be with me and she left, exteremely angry, because I did'nt keep my dates with her.

Mr. Roy on his return did not even have the grace to thank me. Instead, he started grumbling about my "monopoly" in EDP. I told Dev he could have my "monopoly". Besides overwork had taken its toll of me. I was sick any my doctor had asked me to rest. But I had to see the outstanding trials through. Shah was not in a hurry to close his books for 1967 and I had to see the tricky control work for first closing, second closing, etc., of the ledgers. I was busy and sick. And I was just pulling on by my guts. When Roy would come up and start a petty quarrel about the schedule for spinning in the machine job priorities, I told him I would get his job out in time. But he would go and pick Dev's ears. Dev began to listen to Roy. And I had no time and inclination to go and grumble. After the pile up, I did not have the energy to do it. Besides, I thought it to be petty.

But Mr. Roy did not think picking ears to be petty. He started telling Dev I was insulting everyone—including Dev. I first came to know this when midway in one of our discussions Dev stopped, saying I was behaving in an insulting way. I was taken aback. I told Dev there and then, "Look, just because I argue against something you say does not mean I insult you. As a matter of fact that is the greatest respect I am paying you by treating you as more than just a boss, treating you like an intelligent person who can participate in a give and take." He became apologetic then and said that he knew my intentions were good. But Mr. Roy persisted. Dev took upon himself to plug a panel for machine. But this disturbed the regluar work. I once remarked about this factor. He would have understood this a month back. But then he flared up, saying, "Did I mean to say he did not know the job ? Did I know I was insulting him ?" Roy took this opportunity to say how I was always insulting Roy. I only shook my head. Disgusting, it was.

Gradually, Mr. Dev started getting irritated about things he had put up with, things he would even have invited just a month back. He would shout, thump his desk if I pointed out something on his part that affected my work adversely. Once I got so disgusted I gave him my resignation letter, saying I refused to overwork, to be underappreciated and to be under-paid. Sometime back I had seen a psychologist on his suggestion. Dev had said that I was just like a family member, that's why he was taking this liberty to make this suggestion. He said I should consult a psychologist, because I was not getting along well with either Shah or Roy. I should not have listened to his myth of my not getting along well. I had friends in mills—more than he could think of. But just to check up and make sure whether it was not my defence mechanism which made me think this, I saw the psychologist. When I resigned, Dev became aware that there was something eating me. He asked me to write down everything that was troubling me. He said he would not let me resign. He said I should know how much he respected my work, my intellect, my sincerity.

I wrote down everything. I said he should give me the opportunity to do my work peacefully and without disturbance. We discussed this. He said I should write down the ground rules we should both adhere to in our relationship. I wrote them down. I had asked for faith in my bonafides, my ability to do the job. I had asked for less disturbance and interference in doing the job. I had asked for some authority, such as to give my boys their due overtime if I worked them late.

I guess that's why I stayed. Because I believed him. I thought again that another Mr. Dev would assert himself over this irritating character, the man who had turned up at the Mills to help me after I had phoned him. This time he did not.

I enquired everyday when we could settle on the rules. This pestering had continued. He would keep on postponing it. My boys were not paid their overtime dues for months. When I would point it out, he would say I was imagining things. When a boy would be so much overworked that he would crack, he would say I was imaginging things. He would tell me not to waste his time on such imaginary issues, and spend it working. Who else worked the things then ? He would still tamper with machine priorities. He would still do the things I objected against. If I protested, he would say: "Don't you see you are wrong ? Ask Roy if you don't believe me." Mr. Roy would invariably say that he was right and I was wrong. It was maddening.

There was another thing. Dev was trying out on the machine one evening. I was to leave at six." Since he was using the machine time on trial, I thought we could finish it in the evening itself. So I did not provide for it in the machine priorities next day.

When I went to the mills next day, he exploded. He asked whether I was going to get along with Roy or not. He said I was insolent. He said the proof was that I insulted him by not providing for his trial job in the priorities. I explained why I did not include it. He said he did not want to listen to any excuses. He said I had two alternatives, either I accept Roy as my equal, respect him, say hello to him, take him out for coffee and all, or he would try an "experiment" —he would put one of us to work under the other. I told him that Mr. Roy had to earn this equality, my respect, by working and giving up petty squabbling. I said he can't force any friendship on me like that. He said, "Okay, then, I put you to work under Roy for one month." I asked why the arrangement should not be vice-versa, I being the senior in the department. He said this was his look out. I said "O. K., call everyone in the department and announce your decision." He did it and I boiled inside.

When I came back from a short leave, Dev said that he was putting me up on new assignment—systems development, the job Kelkar did till he left. He said that though I did machine room operations well, he was not sure whether I could accomplish this development-work. I said he could give me anything he wanted to. He was the boss. Though I did not think it was the right time for me to leave the machine room. I had yet to gain confidence in the ability of my boys to do it all alone. I would have liked to groom them more. But I had had my belly full.

I was to begin with order processing, and he gave me two and a half months to do it in. I finished the work in one month. When I submitted the systems analysis report to him, he admitted that it was an "A" grade work, admitted it before others. I hope he has not changed his mind now. Then I worked out invoicing and brokerage systems—smaller systems—four outputs only—in another ten days. I also modified Kelkar's design of interest follow-up and worked out an interest register. I also worked out the inventory control system that the inventory controller had asked for. So in August I was through with systems development work assigned to me except for costing and budgeting.

Dev could not question the speed and the quality of my work. He admitted I had done my work well and that I worked like an engine. He even allowed me to go over to libraries during company time.

But during July and August there had been other developments. I was given an increment of Rs. 85 all told, and that too beginning from July. I told Dev I expected much more than this. I told him he had given a better deal to almost everyone comparable to me in rank and status. I said almost everyone in the mill was given his increment from January—then why not me ? He tried to shake me off, saying, "To decide increments in my prerogative." I replied, "If this is the case, I shall exercise my prerogative. I shall not accept any increment." He asked if I could give this in writing. I wrote that up then and there. He didn't accept it. He said I should write up my grievance regarding the increments. I did it. In that I described that I would not question his prerogative of deciding the amount of increment but would only ask him to keep his promises. I reminded him of his promise to equal the Data Processing terms, which had meant an increment after six months.

He took the letter of my grievances and kept it for many days. Meanwhile, he gave me the prize money—the prize he had declared in January; perhaps to soothe me. Next day, after I got the prize letter, he said he had considered my grievances and would not change his decision. That was what I had expected. I asked whether he would let me go. He said I had to fulfil my contractual obligations if I left. That meant I had to shell out 5,000 rupees if I left. So he wanted to keep me by force now. And he was the man who had said, when I joined, that he did not believe in contracts but was following a mere convention while asking me to sign a contract.

He called me in once more and said he wanted me to be frank with him. I said I always had been frank with him, perhaps too frank. He asked me about a colleague who had left his job without informing anyone. He said we were opportunistic and disloyal. When I pointed out that I had stuck by him in spite of everything, he said that even I had threatened to quit. That was stupid. I had only honestly told him about the offer when he had given me big hopes which he later on betrayed. I offered to do the job left vacant by the colleague because I felt sorry for Dev's predicament. He was looking so forlorn then. He thanked me. He said he was also a man of principles like me and such things disturbed him.

After that, he was good to me for quite a number of days. Then, I approached him on my own and asked him that since I had time on my hands, could he give me some more work which would interest me. I told him that this time the work should be well-defined. He gave me an assignment to put customer profile data with the sales contract. This was the job of the Sales Department and I was not going on behalf of EDP department. I asked him to make this known to Sales before I proceeded. He said he would, but he did not. I wanted to change the method of doing this job—to make it like an assembly line work where one clerk puts on a bit of customer data and then passes it on to the next man in line. This would do away with the backlog and would cut out much of the operation time.

But this required synchronisation, and Sales had to make a man available at a particular time. When I requested this effort on part of the Sales, it did not come through. Besides, I was asked why I should bother Sales for EDP work. So I took the person who looked after Sales administration to Dev to get it clearly across to Sales that this was its work and EDP had nothing to do with it and I was there to help them and not as an EDP officer. This should have been done by Dev in the first place. He settled it then. But then he complained that I had again created a "relationship problem" and quarrelled with Sales. This infuriated me. This was the height of ingratitude. Here I go and offer to do something over and above my duties, and then, instead of admitting his inaptitude in delegating and communicating, this man goes and exploits the myth he has created. I told him it was high time he called off his bantering about my not getting along well. I told him I had more friends in this company than he had. And I told him I was off the job—the work was organised by now so that it could go on and henceforth, I won't do anything over and above what I am expected to do. He gulped this down at the time.

About a week after this, he called me up in the Chief Executive's office. He, the Purchase Manager and the Chief Executive spoke: "Mr. Dev can't somehow get along well with you. So it is decided that you should work under the Purchase Manager." I said why had Mr. Dev not gone into the real reasons of his not getting along well with me. C.E. said that this was not the point. I said that I had joined this Company as an EDP officer, and I wanted an EDP career here. C.E. said that anyway this transfer was only temporary. I asked him whether he really thought that such an arrangement would serve the purpose he had in mind ? Instead of answering the question, he said that anyway management had decided this. I said if that is the management's order I would abide by it.

In the afternoon, Mr. Dev's steno came over to me with the transfer letter. When I went through it, I realised that I was supposed to do two jobs, inventory control in the purchase department and also my EDP assignments on costing. I went to Dev and told him that this was not fair. If he wanted me to do anything extra than what I was supposed to do, he should compensate me for the additional duties. He started saying that he was doing this for my own good, and I should believe in him that if I did my duties, he would pay me more. I said I had believed him enough. And he had failed to deliver his promises. I had had enough. I won't do more work at less pay. Unless there was going to be a fair deal and I was paid for my additional assignments, I won't take them.

The next day, I came to know about the meeting where this arrangement was thought of. Everyone who participated was supposed to keep this confidential and not to tell me about the meeting. One after anoter, four people who participated came and told me about it. Dev had gathered about 12 officers of the company—not necessarily all my friends and well-wishers—in the Chief Executive's office. Everyone was asked to keep this confidential. Dev's steno took down the notes of the meeting. Everyone was told that the purpose of this meeting was to decide how should I be treated in view of the fact that I was not getting along well with people with whom I dealt. He invited suggestions as to what was to be done with me. A friend said that I should be consulted before they discuss me. He was told that this was not necessary. Various suggestions came by. But one suggestion was actively promoted and in the end accepted. That was from the Inventory Controller. He suggested that I should be transferred to some other department. I do not know for sure whether this decision was prearranged or not, but I have a hunch that it was.

When I came to know about this meeting, I became furious. This was nothing but an inquisition. The meeting was a hoax. I certainly can't tolerate myself being an agenda—my future being decided by a bunch of officers, not all my well-wishers and some like Shah and Roy who had their axes to grind. Even Dev's steno was asked to give her opinion of me. This was the last straw. If I allowed this practice of inquisition by meeting to go by, it might spread. Textiles is such an industry where good practices take years to sink in, but bad practices spread like wild fire. Today it was me, tomorrow it might be any other executive.

I went to Dev and told him that if he had any decency left in him, he would not have done this, least of all, he would not have gone and asked Shah and Roy to decide my future. I was very angry. He was taken aback. He bluntly denied that such a meeting was ever held. "Whoever has told about this meeting, lied to you," he said. I told him I didn't know who was lying, because four people wouldn't tell the same story the same way. He said I should believe him, I said, "I don't believe anybody anymore," and went away. That was the 20th of September.

On the 23rd, I was called by Chief Executive. Again C.E., Dev and Purchase Manager were there. Dev now admitted that there had been a meeting. "But it was in your interest," he said. I should not believe those people who told me about it, but believe him and a senior man like the C. E. I told him, "How can I believe you when you have repeatedly broken your promises ? How can I believe you when yourself told that I should not have believed you but got the things in writing ?" I ,asked him whether he had anything to say about my work, my performance. He said he was quite satisfied with it. I asked him whether I didn't complete my assignments before the due date satisfactorily. He said I did. I asked him then why he wanted to punish me. He said that it was not a punishment, it was appreciation of my abilities. He wanted to see me advance in his company. I told him that there were better ways to appreciate a person for his work than giving him more work. I asked him why he didn't admit that he had made mistakes. I asked him why he wanted to exploit the myth he had created about by personality problems when I saw through his game clearly. I told him quite a lot. I told him I had given more than enough to him and his company. Why did he want to exploit me further? I asked him to leave me alone. He had played enough with me. I asked him why did he not go and do that with someone else for a change?

This gruelling experience lasted for more than four hours that day. Next day, first the Purchase Manager phoned up to me asking when I would come over to his department. I said, "Sorry, I won't." Then the Chief Executive called me. "So you are going over to Purchase after all, are you not?" I answered him, "No Sir, I am not." He said I was letting everyone down. I said there was no question of letting anyone down. I was doing what I thought was the best. He said what I was doing was tantamount to defying the management's decision. I said I was sorry if he interpreted it this way, because I did not quite think this was a management decision, but a group decision in which even a steno had participated.

Then Dev called me. He asked me what I had decided. I said I had already told him of my decision. He said there were only two options left to me: either I go to Purchase, or we part. I said, I opted for the second one. He said in that case he would give me back my deposit money and won't bring the contract in my way. I could resign and I could stay on as long as I did not find another job.

So that's how my story ends. I am carrying on in the Sharma Mills, do what they ask of me and am looking out for a new job. It is not an easy life, but I feel relieved. I hope and pray to God that I get another job soon. Because I want to forget about all that has happened to me as fast as I can. I want to be happy and young again. I want to be trusting again. I want to forget about the bitterness of the betrayal of my trust and faith in a person to whom I gave all I can.

I trust the Dev Sharma I met at Ahmedabad. I believed him to be one kind of person—enthusiastic, talking of new ideas and new things. But there was also another Dev Sharma—greedy, suspicious, egoistic, vindictive. So greedy he would break his promises for petty sums. So suspicious that he would 'not look at the things before his eyes but believe in hearsay.' So suspicious that he would listen to any ear-picker howsoever petty he may be. So suspicious he would sometimes refuse to believe I could get better performance from my boys trusting them from a distance and judging by results than by standing on their neck "closely supervising" them. And his ego ? Often he would believe in his own great self and not just that, he would often ask us whether we did not think that he was the nicest of all boses ?

I liked Dev Sharma who would come and ask questions and try to understand things; the man who wanted to go deep into a subject to find out the truth for himself, the man who would sit and discuss a thing out and take a decision. But this man was rare between the Dev Sharmas who dominated the subordinates most of the time. I have spent some wonderful time with him. I would do anything for him. And it was in the hope that I would be able to bring out his old self once again as I did in November that I stuck on so long. But now I have lost the hope after the meeting—which he still thinks to be "a good experiment."

I could save Dev Sharma from Shah and other trying to harm his interests. I would put up a big fight and fight it through. But only because there is a chance for me to win. But I cannot save Dev Sharma from Dev Sharma himself. That's a losing proposition. I have fought that long enough and lost. I don't want to do it anymore. That is all.

PART FOUR

Understanding Behaviour in Groups

CHOWDHRY

Research Findings in Small Groups

BENNIS AND SHEPARD

A Theory of Group Development

DUNPHY

A Three-Dimensional System for the Analysis of Interaction in Primary Groups

READINGS

KAMLA CHOWDHRY

Research Findings in Small Groups

THE UNDERSTANDING of small groups is important to the manager for several reasons. First, most people work as members of small groups, whether at the shop floor level or in the context of an office. Second, managers and supervisors can more easily influence small groups rather than large numbers at the inter-departmental or organisational level. Third, managers very often have to form and work in committees for formulating recommendations and working out solutions to problems. In this chapter the focus will be on some concepts for understanding the working of small groups. By a *small group* is meant a size varying from 4 to 12 members, who usually have face to face relations, over a period of time, and who consider themselves as differentiated from others, either implicitly or explicitly. Some of the major contributors to the study of small groups have been Fritz Roethlisberger, Kurt Lewin, George Homans, and Robert Bales. Around these names major schools of thought have developed which have furthered our conceptual knowledge regarding the nature and functioning of small groups.

ROETHLISBERGER: GROUP NORMS

Roethlisberger conducted his studies around 1930 at the Hawthorne plant of the Western Electric at Chicago. These studies are referred to in the literature of human relations or organisational behaviour as the Hawthorne studies, the Western Electric studies, and sometimes as the Harvard studies.

The Hawthorne experiments were begun as an attempt to investigate the effects on production of such factors as temperature, lighting, rest pauses, and length of work-day. A group of five experienced women workers were studied. They were located in a special room, the "test room," so as to control conditions and make for more accurate observations. An observer from the research team was always present in the test room. The observer noted all that went on, asked for advice or information, and listened to their complaints. There were 13 stages in the experiment. The results of the different stages, as summarised by Brown, are given below:

> 1. Under normal conditions with a forty-eight-hour week, including Saturdays, and no rest-pauses, the girls produced 2,400 relays a week each.
> 2. They were then put on piece-work for eight weeks and output went up.
> 3. Two five-minute rest-pauses, morning and afternoon, were introduced for a period of five weeks, and output went up once more.
> 4. The rest-pauses were lengthened to ten minutes each. Output went up sharply.
> 5. Six five-minute pauses were introduced, and output fell slightly as the girls complained that their work-rhythm was broken by the frequent pauses.
> 6. Return to the two rest-pauses, the first with a hot meal supplied by the company free of charge. Output went up.
> 7. The girls were dismissed at 4.30 p.m. instead of 5.00 p.m. Output went up.
> 8. They were dismissed at 4.00 p.m. Output remained the same.
> 9. Finally, all the improvements were taken away, and the girls went back to the physical conditions of the beginning of the experiment; work on Saturday, forty-eight-hour week, no rest-pauses, no piece-work and no free meal. This state of affairs lasted for a period of twelve weeks, and output was the highest ever recorded, averaging 3,000 relays a week.[1]

The research workers in deciding to return to the original conditions of the experiment had expected productivity to return to its original level also. But what astounded the research workers was that instead of productivity returning to its original level, it reached the highest level ever recorded. They argued that if increases in illumination or introduction of rest-pauses or free lunches was responsible for the increases in productivity, then withdrawing of these conditions should bring productivity to its original level. Obviously, something was happening in the test-room which was responsible for the increased productivity, and further work became necessary to discover the nature of this unknown factor. In order to find out what really was happening in the the test-room, the research workers launched into an extensive interviewing programme of the workers. The interviewers were trained to listen and to encourage free expression. An analysis of the interview material revealed that with the introduction of improved conditions a more favourable work attitude had gradually developed. Also, the observer in the test-room exercised no control over the employees and permitted them to talk to each other and to help each other. As a consequence of this permissive atmosphere, the relationship among workers in the test-room became more friendly. The workers helped each other, absenteeism decreased and productivity increased.

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[1] J. A. C. Brown, *The Social Psychology of Industry* (Baltimore: Penguin Book, 1954), pp. 71-72.

Stuart Chase, in his *The Proper Study of Mankind* and *Men at Work*, gives an interesting account of the implications of this piece of research. Briefly they are:

> Production was raised primarily because of a change in the girls' attitudes towards their work and their work-team. By asking their help and cooperation, the investigators had made the girls feel important. Their whole attitude had changed from that of separate cogs in a machine to that of a congenial group trying to help the company solve a problem. They had found stability, a place where they belonged, and work whose purpose they could clearly see. And so they worked faster and better than they ever had in their lives.[2]

The experiments demonstrated that industry, apart from the production of goods, is also a social system, that the primary group rather than the isolated individual should be the basic unit of observation in industrial research; and that adequate motivation is more important than the conditions of the physical environment. Chase continues :

> A factory performs two major functions: the economic one of producing goods and the social one of creating and distributing human satisfaction among the people under its roof. A great deal of study by efficiency experts had been devoted to the production function, but very little to the social function until the Hawthorne

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[2] *Ibid.*, p. 72

> experiment came along and discovered that the two were inseparable. If a factory's human organisation is out of balance all the efficiency systems in the world will not improve the output.[3]

In another experimental group, known as the bank wiring room, the effect of the incentive system of payment on output was studied. There were 14 men in this group. The incentive plan provided that the more work an employee did, the more money he received. Yet neither more nor less than 6,000 units were produced each day, although the group without the least difficulty could have produced 7,000 units daily. Some of the attitudes and group norms affecting productivity of the group were as follows :

a. You should not turn out too much work or you will be a 'rate-buster'.

b. You should not turn out too little work or you will be a 'chiseller'.

c. You should not tell a supervisor anything which will react against an associate or you will be a 'squealer'.

d. You must not act officious or you are 'for the company'. According to this 'code', an inspector must not act like an inspector. If he does, there are many ways in which the worker can interfere with him. In this way antagonisms accumulate and the situation grows worse.

Obviously, the values and the customs of the group were more important to the workers composing the group than any cash benefits. It became clear that in the bank wiring room, there existed an integrated group with its own social structure and code of behaviour —a code which conflicted with some of the intentions of the management, for the workers curtailed their production to 6,000 units per day as determined by their own group norms.

Group norms therefore, are, ideas that develop in a group as to how the members in a group are expected to behave. Norms are not behaviour itself, but ideas of the group, implicit or explicit, that influence the behaviour of members. In most groups, there are "regulars" who follow the norms of the group, "rate-busters" who ignore the norms and produce much more, and deviants who produce much less and who do not seem to acquire a membership in the group. A working group has norms about its productivity, about its relationship to the supervisor, about behaviour among members themselves, and other things such as dress, etc. A member can only defy the norms of the group at the risk of becoming an isolate or at the risk of other punishments by the group. The informal leader of the group that emerges is a member of the "regulars" who best meets the important norms of the group.

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[3] *Ibid.*

LEWIN: GROUP DYNAMICS

Some of the early work dealing with resistance to change was done by Kurt Lewin and his associates during World War II. The experiments by Kurt Lewin were in non-industrial situations although his associates later on applied the same concepts to industrial situations.

Kurt Lewin conducted a series of experiments which showed the effectiveness of group discussion and group decision as compared to individual decisions for introducing changes of various kinds.[4] One of the earlier problems he undertook to study by the experimental method, was the introduction of change in food habits among housewives during the last war. Lewin conducted the experiment with six Red Cross Groups organised for home nursing. The objective of the experiment was to change their food habits by the increased use of certain types of meats not generally used by the house-wives. The design of the experiment was that in three groups lectures were given which linked the problem of nutrition with war effort and emphasised the health and economic aspects of certain types of meats. In the other three groups, discussion was held on the use of the other types of meats. A follow-up showed that only 3% of the women who heard the lectures served one of the meats not served before, whereas, after group discussion, 32% of the women served one of the meats not served before.

In another experiment, conducted by Alex Bavelas, an attempt was made to increase the production of workers by group discussion and group decision.[5] In the plant in which the experiment was conducted, the unit of production was 60 units, and 75 units was considered to be the ceiling. In several group meetings, the workers discussed the need to increase production and decided that the production goal should be 84 units. Actually, the production stabilised at 87 units. By further experiments the research worker showed that the increase in production was caused largely by group decision. In groups where only group discussion was held, no significant increases in productivity were reported. Group decision is, therefore, an extremely impor-

[4] Kurt Lewin, "Group Decision and Social Change" in *Readings in Social Psychology* ed. Newcomb Hartley and others (New York: Henry Holt & Co., 1947), p.

[5] N.R.F. Maiers, *Psychology in Industry* (New York: Houghton Mifflin & Co.),1946.

tant factor in determining the performance of a team of workers.

The implicatons of this work on overcoming resistances to deep-rooted habits are significant. If changes in work habits have to be made, mere telling and explaining the need and necessity of them do not seem to achieve results. The changing of group norms is important for changing the behaviour of individual members. The acceptance of change is, therefore, largely a social and a group function, rather than an individual matter.

Experiments to improve the productivity of workers by group discussion and group decision were also tried in a number of textile mills in Ahmedabad.[6] Meetings of 8 to 10 workers in the winding and warping sections were arranged to discuss the causes of breaks and ways of reducing them. In these meetings the workers were encouraged to express to their difficulties and also to make decisions to improve some of their practices of tying knots, etc. The results[7] after group discussions and group decisions showed improvement in the breakage rate by 50%; improvement in the loomshed by 5 to 7% efficiency; and reduction in damages by 40 to 50 %. The problem of change, the degree to which changes are accepted or rejected by members, depends on the controls exercised and sanctions given by the group.

Bales: Group Processes

Earlier we discussed how "norms" developed by the group are significant in controlling the production and behaviour of members in a group. The "regular" members of a group respond more to norms of the group, than to incentives of management, because the social needs of members are satisfied far more by the social structure of the group than by the rewards offered by management. The important thing for supervisors and managers to understand is that productivity and satisfaction, to a large measure, are a matter of group phenomena. Further, the work of Kurt Lewin suggested that if changes in productivity or work habits have to be effected, the group discussion and group decision method is far more effective than logical reasoning with individual members, and that change in worker behaviour is also largely a matter of group phenomena.

In order to understand group process, that is, what happens during the process of group discussion and group decision, Bales devised a method of observation, recording the analysis of the interaction process

[6] Kamla Chowdhry and V.R. Trivedi, *Motivation to Work: An Improvement in Motivation to Work of Winders and Warpers and its Effict on Loomshed Efficiency* (Ahmedabad : ATIRA, 1953.

[7] *Ibid.*, p. 32

that takes place during discussion in small groups. The interaction between members was analysed in 12 categories as shown in Table 1. He found that there were certain characteristics (Table 1) which differentiated satisfied from dissatisfied groups. In satisfied groups there was a higher rate of suggestions, more often followed by positive reactions and less often by negative reactions and questions, than found in dissatisfied groups. A moderate rate of negative reactions, around 7 to 8%, was associated with the successful equilibrium of a group. Very low rates of negative reactions may mean high residual tension in groups, and very high rates suggest extraordinary sources of tension.

TABLE 1

INTERACTION ANALYSIS

CATEGORY OF PRIOR ACT (Input Type)

1. SHOWS SOLIDARITY, raises other's status, gives help, reward.
2. SHOWS TENSION RELEASE, jokes, laughs, shows satisfaction.
3. AGREES, shows passive acceptance, understands, concurs.
4. GIVES SUGGESTION, direction, implying autonomy for others.
5. GIVES OPINION, evaluation, analysis, expresss feeling, wish.
6. GIVES ORIENTATION, information, repeats, clarifies, confirms.
7. ASKS FOR ORIENTATION, information, repetition, confirmation.
8. ASKS FOR OPINION, evaluation, analysis, expression of feeling.
9. ASKS FOR SUGGESTION, direcion, possible ways of action.
10. DISAGREES, shows passive rejection, formality, withholds help.
11. SHOWS TENSION, asks for help, withdraws "Out of Field".
12. SHOWS ANTAGONISM, deflates other's status, defends or asserts self.

Another important finding of Bales was that discusson in small groups moved in certain phases—"changes in quality of activity as groups move through time in attempting to solve their problems may be called phase patterns."[8] Small groups attempting to deal and decide about problems tend to move from a relative emphasis on first trying to understand what the problem is (orientation), second, to attempts to find out how the group feels about it (evaluation), and lastly to questions dealing with what should be done about the situation (control). Concurrent with these phases to solve the problem are the negative and positive reactions of members. The negative reactions are disagreement, tension, and antagonism, whereas, positive reactions are agreement, tension release, and solidarity. If problems of evaluation or control are dealt with earlier than problems of orientation, negative reactions set in. Many group meetings fail in their purpose of satisfactory discussion and decision if some members commit themselves to an action before sufficient exploration of the other's point of view has been elicited. "When the problems of arriving at a common orientation and evaluation of the situation have not been substantially solved by the group members," says Bales, "attempts at control will meet with resistance on the part of the others and frustration on the part of the person attempting to exercise the control."[9] If the situation has now to be retrieved, the members have to evaluate and solve these problems before moving to statements of control.

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[8] Robert F. Bales, "The Equilibrium Problem in Small Groups" in *Small Groups*, ed. A. P. Hare, A. F. Borgatta, and R.F. Bales (New York: Alfred A. Knopf 1961), pp. 512-513.

Bales also found in his studies of small groups cyclical patterns of group process accruing, that is, the group alternated between working on the task of problem-solving and working on the internal problems of emergent tensions. Bales termed these cycles instrumental-adaptive and expressive-integrative phases of the group. It was found that the group members could work in any one phase for only a limited time before stresses built up, forcing the members to turn their attention to the other phase, namely, of releasing stresses. For example, if the members were concentrating on solving the problem for some time, an insignificant incident would provide the occasion for laughter and joking among members. Bales summarised these findings as follows :

> . . . the instrumental-adaptive activity of the preceding participant tends to build up tensions in the present participant to some point where he enters the process and changes to activity of an expressive-integrative relevance, which tends to "bleed off" the tension to some point at which he changes the focus himself and continues again with instrumental-adaptive activity. *The problem of equilibrium is essentially the problem of establishing arrangement (or an "orbit of activity") whereby the system goes through a repetitive cycle, within which all of the disturbances created in one phase are reduced in some other.* The dilemma of all action systems is that no one disturbance can be reduced without creating another.[10]

The specialised roles of members are interrelated to the cyclic phases of the group process. Thus, if the members have been concentrating on tasks, then tensions tend to build up, so that at a later stage the "social specialist" enters the process and changes the activity from instrumental-adaptive to expressive-integrative. What is tension-producing for the social specialist is tension-reducing for the task specialist.

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[9] *Ibid.*

[10] *Ibid.*, p. 453.

In organisational settings it is important that senior managers have some understanding of the specialised roles of subordinate managers so that the former can create effective groups and committees.

TASK AND MAINTENANCE ROLES

If at the end of the group discussion and group decision meetings, the members were asked as to who contributed the "best ideas" and who was the "best liked" person in the group, the results were extraordinary. It was found that the top man in ideas was unaccountably low in being best liked. And the best liked person was unaccountably low on best ideas. There was something about high participation and high contribution in ideas which tended to provoke hostility.

Bales suggested that members in groups assume specialised roles—some have special skills in contribution to the ideas and the task of the group, others contribute to the emotional aspects of the members and keep them in a cooperative relationship. If the selection of members in a group is such that there are no members who have special skills in releasing tension, in creating solidarity, etc., then the members are likely to fight and the group consequently fails in its task. In other words, in small groups two kinds of leadership roles are required for effective decision-making—leaders who help in the fulfilment of the task, and leaders who help the group to function as a group. These two roles are complementary, no one role can work effectively without the presence of the other. Individuals who combine the two roles are rare. Slater points out at least two reasons for the rarity of such men:

> First, there are sociological factors, revolving around the non-compatibility of the task and social-emotional roles. Adaptation to pressures from outside the group, such as are created by a task which must be performed, involves, by definition, change. The individual who presses toward solution of a task inadvertently forces those around him to make continual minor adjustments in their behaviour, and to continually re-examine their ideas and values, in the light of these external demands. The individual who concerns himself with internal social-emotional problems, on the other hand, is supportive in his responses to the ideas and behaviour of those around him, and continually reaffirms their dominant values. The orientation of the task specialist is thus more technological, that of the social-emotional specialist more traditionalistic. It is, presumably, the latter type of behaviour which seems more appealing to

> members called upon to indicate whom they personally like best.
>
> This is not to say that the task specialist will actually be disliked, but rather his task emphasis will tend to arouse some negative feelings—feelings which may not be expressed, and which will never outweigh his value to the group in the minds of its members. Such feelings merely neutralise any strong positive feelings other members may hold toward him. . .
>
> The second set of reasons for role specialisation and differentiation may be called psychological. These have to do with the individual's predisposition to assume a particular role. Men who are best liked, e.g. may "have to be liked," and may achieve prominence in this role because of ingratiating skills they have acquired during their lives in bringing this desired situation about. Avoidance of conflict and controversy may be a felt necessity for this type of a person—hence, his behaviour will show nothing that could be a source of disharmony. He will avoid even the thought that he might like some of his fellow members better than others. His rate of interaction will be average—not too high, not too low. He will in fact retire into the conventional safety of the "average Joe". He may even avoid the performance of task functions altogether, because of the personal threats which task activity might hold for him. Instead, he will express the group's feelings and questions, and place its stamp of approval upon what has already come to pass.
>
> The task specialist, on the other hand, may assume this role only because of an unwillingness or inability to respond to the needs of others. A compulsive concentration on an abstract problem will serve as an intellectual shield against the ambiguity of human feelings. Needs to express hostility may be channeled into aggressive and dogmatic problem-solving attempts.[11]

These concepts as developed by Bales are of great significance to a mangaer in becoming a more skilled member of groups and committees.

COMMITTEE BEHAVIOUR

There is considerable work in an organisation that is dealt with in committees. There is the Board of Directors, Management Commimittee, Planning Committee, Coordination Committee, Selection Committee, Production Committee, Inter-depertmental Committee, and many other committees outside the organisation in which a manager has to participate. Some understanding of committee behaviour is therefore of significance. Although observing and understanding committee meetings is difficult, especially if you are an involved member, it is important to become more aware of the relevant factors, more sensitive in observing, analysing and interpreting what is happening in the committee meeting, and becoming more skilful in dealing with tense situations.

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[11] P. E. Slater, "Role Differentiation in Small Groups" in *Small Groups*, *op. cit.*, pp. 512-513.

The selection of members, the size of the committee, the setting of the meeting, are all important matters to be considered. The feelings, attitudes, and behaviour of committee members are often influenced by the setting in which the meeting takes place. Some settings are luxurious, others sparse: some are distracting, other have a quality of concentration; some are cramped, others spacious. Whatever the physical setting, it is likely to have a positive or negative effect on different members of the committee.

If there is a large committee, say more than 12 members, the likelihood is that the members will break up into small-groups. On the other hand, a very small committee, say of three members, is likely to get involved in power struggles.

A "sensitive" member of a committee will watch not only the context of the meeting, but will also try to understand the process that is going on. If the phase movement of the committee has become abnormal, the "sensitive member" will notice the resistances and antagonisms that develop and will try to bring back the discussion to earlier phases so that the group goes through its normal phases in sequence. A "sensitive" member will also try to fulfil in the committee not only the task requirements but also the emotional aspects of the group. As in all matters it is much easier to understand intellectually the concepts of small groups than to make the necessary moves in a real situation where the personal involvment makes the observation of the content and process more difficult. The most difficult aspect of understanding what is happening in a committee meeting is to recognise and evaluate one's own part in it.

WARREN G. BENNIS AND
HERBERT A. SHEPARD

A Theory of Group Development[1]

IF ATTENTION is focussed on the organic properties of groups, criteria can be established by which phenomena of development, learning, or movement toward maturity can be identified. From this point of view, maturity for the group means something analogous to maturity for the person : a mature group knows very well what it is doing. The group can resolve its internal conflicts, mobilize its resources and take intelligent action only if it has means for consensually validating its experience. The person can resolve his internal conflicts, mobilize his resources, and take intelligent action only if anxiety does not interfere with his ability to profit from his experience to analyse, discriminate and foresee. Anxiety prevents the person's internal communication system from functioning appropriately, and improvements in his ability to profit from experience hinge upon over-coming anxiety as a source of distortion. Similarly, group development involves the overcoming of obstacles to valid communication among the members, or the development of methods for achieving and testing consensus. Extrapolating from Sullivan's definition of personal maturity we can say a group has reached a state of valid communication when its members are armed with :

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[1] This theory is based for the most part on observations made over a 5-year period of teaching graduate students "group dynamics." The main function of the seminar as it was set forth by the instructors was to improve the internal communication system of the group, hence, a self-study group. See (18).

> . . . referential tools for analysing interpersonal experience, so that its significant differences from, as well as its resemblances to, past experience are discriminable, and the foresight of relatively near future events will be adequate and appropriate to maintaining one's security and securing one's satisfaction without useless or ultimately troublesome disturbance of self-esteem (19, p. 111).

Relatively few investigations of the phenomena of group development have been undertaken.[2] This paper outlines a theory of development in groups that have as their explicit goal improvement of their internal communication systems.

A group of strangers, meeting for the first time, has within it many obstacles to valid communication. The more heterogeneous the membership, the more accurately does the group become, for each member, a microcosm of the rest of his interpersonal experience. The problems of understanding, the relationships, that develop in any given group are from one aspect a unique product of the particular constellation of personalities assembled. But to construct a broadly useful theory of group development, it is necessary to identify major areas of internal uncertainty, or obstacles to valid communication, which are common to and important in all groups meeting under a given set of environmental conditions. These areas must be strategic in the sense that until the group has developed methods for reducing uncertainty in them, it cannot reduce uncertainty in other areas and in its external relations.

I. THE TWO MAJOR AREAS OF INTERNAL UNCERTAINTY: DEPENDENCE (AUTHORITY RELATIONS) AND INTERDEPENDENCE (PERSONAL RELATIONS)

Two major araes of uncertainty can be identified by induction from common experience, at least within our own culture. The first of these is the area of group members' orientations toward authority or more generally toward the handling and distribution of power in the group. The second is the area of members' orientations toward one another. These areas are not independent of each other: a particular set of inter-member orientations will be associated with a particular authority structure. But the two sets of orientations are as distinct from each other as are the concepts of power and love. A number of authorities have used them as a starting point for the analysis of group behaviour.

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[2] "Unfortunately, relatively litle research has yet been devoted to analysing the relationships between group goals and the associated group functions." D. Cartwright and A. Zander (3, p. 313). The best attempt to date, and one we have relied on a good deal is by H. Thelen and W. Dickerman (21). The Thelen and Dickerman paper was based on training groups at the Nationacl Training Laboratory for Group Development at Bethel, Maine. These groups were similar in function and goals to the seminar groups at M.I.T.

In his *Group Psychology and the Analysis of the Ego*, Freud noted that "each member is bound by libidinal ties on the one hand to the leader ... and on the other hand to the other members of the group"(6, p. 45). Although he described both ties as libidinal, he was uncertain "how these two ties are related to each other, whether they are of the same kind and the same value, and how they are to be described psychologically." Without resolving this question, he noted that (for the Church and the Army) "one of these, the tie with the leader, seems . . . to be more of a ruling factor than the other, which holds between members of the group" (6, p. 52).

More recently, Schutz (17) has made these two dimensions central to his theory of group compatibility. For him, the strategic determinant of compatibility is the particular blend of orientations toward authority and orientations toward personal intimacy. Bion (1, 2) conceptualizes the major dimensions of the group somewhat differently. His "dependency" and "pairing" modalities correspond to our "dependence" and "interdependence" areas; to them he adds a "fight-flight" modality. For him these modalities are simply alternative modes of behaviour; for us, the fight-flight categorization has been useful for characterizing the means used by the group for maintaining a stereotyped orientation during a given subphase.

The core of the theory of group development is that the principal obstacles to the development of valid communication are to be found in the orientations toward authority and intimacy that members bring to the group. Rebelliousness, submissiveness, or withdrawal as the characteristic response to authority figures; destructive competitiveness, emotional exploitiveness, or withdrawal as the characteristic response to peers prevent consensual validation of experience. The behaviors determined by these orientations are directed toward enslavement of the other in the service of the self, enslavement of the self in the service of the other, or disintegration of the situation. Hence, they prevent the setting, clarification of, and movement toward group-shared goals.

In accord with Freud's observation, the orientations toward authority are regarded as being prior to, or partially determining of, orientations toward other members. In its development, the group moves from preoccupation with authority relations to preoccupation with personal relations. This movement defines the two major phases of group development. Within each phase are three subphases, determined by the ambivalence of orientations in each area. That is, during the authority ("dependence") phase, the group moves from preoccupation with rebellion to resolution of the dependence problem. Within the personal (or "interdependence") phase the group moves from a preoccupation with intermember identification to a preoccupation with individual identity to a resolution of the interdependence problem.

II. THE RELEVANT ASPECTS OF PERSONALITY IN GROUP DEVELOPMENT

The aspects of member personality most heavily involved in group development are called, following Schutz, the dependence and personal aspects.

The dependence aspect is comprised by the members' characteristic patterns related to a leader or to a structure of rules. Members who find comfort in rules of procedure, an agenda, an expert, etc., are called "dependent." Members who are discomforted by authoritative structures are called "counterdependent."

The personal aspect is comprised by the members' characteristic patterns with respect to interpersonal intimacy. Members who cannot rest until they have stabilized a relatively high degree of intimacy with all the others are called "overpersonal." Members who tend to avoid intimacy with any of the others, are called "counterpersonal."

Psychodynamically, members who evidence some compulsiveness in the adoption of highly dependent, highly counterdependent, highly personal, or highly counterpersonal roles are regarded as "conflicted." Thus, the person who persists in being dependent upon any and all authorities thereby provides himself with ample evidence that authorities should not be so trustingly relied upon; yet he cannot profit from his experience in governing his future action. Hence, a deep, but unrecognised, distrust is likely to accompany the manifestly submissive behavior, and the highly dependent or highly counterdependent person is thus a person in conflict. The existence of the conflict accounts for the sometimes dramatic movement from extreme dependence to extreme rebelliousness. In this way counterdependence and dependence, while logically the extremes of a scale, are psychologically vary close together.

The "unconflicted" person or "independent," who is better able to profit from his experience and assess the present situation more adequately, may of course act at times in rebellious or submissive ways. Psychodynamically, the difference between him and the conflicted is easy to understand. In terms of observable behavior, he lacks the compulsiveness and, significantly, does not create the communicative confusion so characteristic of, say, the conflicted dependent, who manifests submission in that part of his communication of which he is aware, and distrust or rebellion in that part of his communication of which he is unaware.[3]

Persons who are unconflicted with respect to the dependence or personal aspect are considered to be responsible for the major movements of the group toward valid communication. That is, the actions of members unconflicted with respect to the problems of a given phase of group development move the group to the next phase. Such actions are called barometric events, and the initiators are called catalysts. This part of the theory of group development is based on Redl's thesis concerning the "infectiousness of the unconflicted on the conflicted personality constellation."[4] The catalysts (Redl calls them "central persons") are the persons capable of reducing the uncertainty characterising a given phase. "Leadership" from the standpoint of group development can be defined in terms of catalysts responsible for group movement from one phase to the next. This consideration provides a basis for determining what membership roles are needed for group development. For example, it is expected that a group will have great difficulty in resolving problems of power and authority if it lacks members who are unconflicted with respect to dependence.

III. PHASE MOVEMENTS

The foregoing summary has introduced the major propositions in the theory of group development. While it is not possible to reproduce the concrete group experience from which the theory is drawn, we can take a step in this direction by discussing in more detail what seem to us to be the dominant features of each phase. The description given below is highly interpretive, and we emphasize what seem to us to be the major themes of each phase, even though many minor themes are present. In the process of abstracting, stereotyping and interpreting, certain obvious facts about group process are lost. For example, each group meeting is to some extent a recapitulation of its past and a forecast of its future. This means that behavior that is "regressive" or "advanced" often appears.[5]

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[3] Schutz has developed a test, Fundamental Interpersonal Relations Orientations (FIRO), which is capable of measuring "conflictedness" and "independence" with respect to each of the dimensions, dependency and intimacy, as well as a third, "assertiveness" or the degree to which an individual will make his views felt in expressing himself in a group. See (16).

[4] For a brilliant discussion see F. Redl (15). Redl, following Freud's formulation, illustrated that it is possible for group action to come about as a result of the exculpation of guilt, as the unconflicted frees the conflicted personality individual by the magic of the initiatory act. It is also probably true that individuals may also "like" and feel more compatible with those individuals who do not stir up defended areas. For example, the highly ambivalent person who polarises his conduct along unswerving submissive lines may react negatively to an individual who represents the opposite pole of the ambivalence, the highly rebellious individual. No doubt this is over simplified and schematic, for evidence is obtainable that shows the opposite to be true; i.e. where individuals seek in others those aspects of their personality which are less accessible to consciousness. Read H. Lasswell's article (11), written in 1932 but very modern in its conception. He shows here how the id, ego, and super-ego were delineated in an executive's staff. The evidence, then, seems to indicate that we can be made both anxious and comfortable with individuals who embody our unconscious forces probably depending upon the threat to self-esteem.

A. PHASE I: DEPENDENCE

(i) SUBPHASE I: DEPENDENCE-FLIGHT

The first days of group life are filled with behavior whose remote, as well as immediate, aim is to ward off anxiety. Much of the discussion content consists of fruitless searching for a common goal. Some of the security-seeking behavior is group-shared—for example, members may reassure one another by providing interesting and harmless facts about themselves. Some is idiosyncratic—for example, doodling, yawning, intellectualizing.

The search for a common goal is aimed at reducing the cause of anxiety, thus going beyond the satisfaction of immediate security needs. But just as evidencing boredom in this situation is a method of warding off anxiety by denying its proximity, so group goal-seeking is not quite what it is claimed to be. It can best be understood as a dependence plea. The trainer, not the lack of a goal, is the cause of insecurity. This interpretation is likely to be vigorously contested by the group, but it is probably valid. The characteristic expectations of group members are that the trainer will establish rules of the game and distribute rewards. He is presumed to know what the goals are or ought to be. Hence his behavior is regarded as a "technique"; he is merely playing hard to get. The pretence of a fruitless search for goals is a plea for him to tell the group what to do, by simultaneously demonstrating its helplessness without him, and its willingness to work under his direction for his approval and protection.

We are here talking about the dominant theme in group life. Many minor themes are present, and even in connection with the major theme there are differences among members. For some, testing the power of the trainer to affect their futures is the major concern. In others, anxiety may be aroused through a sense of helplessness in a situation made threatening by the protector's desertion. These alternatives can be seen as the beginnings of the counterdependent and dependent adaptations. Those with a dependent orientation look vainly for cues from the trainer for procedure and direction, sometimes paradoxically they infer that the leader must want it that way. Those with a counterdependent orientation strive to detect in the trainer's action elements that would offer ground for rebellion, and may even paradoxically demand rules and leadership from him because he is failing to provide them.

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[5] It should be understood that the trainer's behaviour and certain ground rules under which the group operates are important forces in the group's development. A rationale for and description of these aspects are presented in another paper. See H.A. Shepard and W. G Bennis (18).

The ambiguity of the situation at this stage quickly becomes intolerable for some, and a variety of ultimately unserviceable resolutions may be invented, many of them idiosyncratic. Alarm at the prospect of future meetings is likely to be group-shared, and at least a gesture may be made in the direction of formulating an agenda for subsequent meetings.

This phase is characterized by behavior that has gained approval from authorities in the past. Since the meetings are to be concerned with groups or with human relations, members offer information on these topics, to satisfy the presumed expectations of the trainer and to indicate expertise, interest, or achievement in these topics (ex-officers from the armed services, from fraternities, etc., have the floor). Topics such as business or political leadership, discrimination and desegregation, are likely to be discussed. During this phase the contributions made by members are designed to gain approval from the trainer, whose reaction to each comment is surreptitiously watched. If the trainer comments that this seems to be the case, or if he notes that the subject under discussion (say, discrimination) may be related to some concerns about membership in this group, he fails again to satisfy the needs of members. Not that the validity of this interpretation is held in much doubt. No one is misled by the "flight" behaviour involved in discussing problems external to the group, least of all the group members. Discussion of these matters is filled with perilous uncertainties, however, and so the trainer's observation is politely ignored, as one would ignore a *faux pas* at a tea party. The attempts to gain approval based on implicit hypotheses about the potential power of the trainer for good and evil are continued until the active members have run through the repertoire of behaviors that have gained them favor in the past.

(ii) SUBPHASE 2: COUNTERDEPENDENCE-FLIGHT

As the trainer continues to fail miserably in satisfying the needs of the group, discussion takes on a different tone, and counterdependent expressions begin to replace overt dependency phase. In many ways this subphase is the most stressful and unpleasant in the life of this group. It is marked by a paradoxical development of the trainer's role into one of omnipotence and powerlessness, and by division of the group into two warring subgroups. In subphase 1, feelings of hostility were strongly defended; if a slip were made that suggested hostility, particularly toward the trainer, the group members were embarrassed. Now expressions of hostility are more frequent, and are more likely to be supported by other members, or to be met with equally hostile responses. Power is much more overtly the concern of group members in this subphase. A topic such as leadership may again be discussed, but the undertones of the discussion are no longer dependence pleas. Discussion of leadership in subphase 2 is in part a vehicle for making explicit the trainer's failure as a leader. In part it is perceived by other members as a bid for leadership on the part of any member who participates in it.

The major themes of this subphase are as follows :

1. Two opposed subgroups emerge together incorporating most of the group members. Characteristically, the subgroups are in disagreement about the group's need for leadership or "structure." One subgroup attempts to elect a chairman, nominate working committees, establish agenda, or otherwise "structure" the meetings; the other subgroup opposes all such efforts. At first this appears to be merely an intellectual disagreement concerning the future organization of group activity. But soon it becomes the basis for destroying any semblance of group unity. Fragmentation is expressed and brought about in many ways: voting is a favorite way of dramatizing the schism; suggestions that the group is too large and should be divided into subgroups for the meetings are frequent; a chairman may be elected and then ignored as a demonstration of the group's ineffectualness. Although control mechanisms are sorely needed and desired, no one is willing to relinquish the rights of leadership and control to anyone else. The trainer's abdication has created a power gap, but no one is allowed to fill it.

2. Disenthralment with the trainer proceeds rapidly. Group members see him as at best ineffectual, at worst damaging, to group progress. He is ignored and bullied almost simultaneously. His interventions are perceived by the counterdependents as an attempt to interrupt group progress; by the dependents, as weak and incorrect statements. His silences are regarded by the dependents as desertion; by the counterdependents as manipulation. Much of the group activity is to be understood as punishment of the trainer, for his failure to meet needs and expectations, for getting the group into an unplea-

sant situation, for being the worst kind of authority figure—a weak and incompetent one, or a manipulative, insincere one. Misunderstanding or ignoring his comments, implying that his observations are paranoid fantasies, demonstrations that the group is cracking up, references to him in the past tense as though he were no longer present—these are the punishments for his failure.

As, in the first subphase, the trainer's wisdom, power and competence were overtly unquestioned, but secretly suspected; so, in the second sub-phase, the conviction that he is incompetent and helpless is clearly dramatized, but secretly doubted. Out of this secret doubt arises the belief in the trainer's omnipotence. None of the punishments meted out to the trainer are recognised as such by the group members; in fact, if the trainer suggests that the members feel a need to punish him, they are most likely to respond in injured tones or in tones of contempt that what is going on has nothing to do with him and that he had best stay out of it. The trainer is still too imposing and threatening to challenge directly. There is a secret hope that the chaos in the group is in fact part of the master plan, that he is really leading them in the direction they should be going. That he may really be helpless as they imply, or that the failure may be theirs rather than his, are frightening possibilities. For this reason subphase 2 differs very little in its fundamental dynamics from subphase 1. There is still the secret wish that the trainer will stop all the bedlam which has replaced polite uncertainty, by taking his proper role (so that dependent members can cooperate with him and counterdependent can rebel in the usual ways).

Subphase 2 thus brings the group to the brink of catastrophe. The trainer has consistently failed to meet the groups needs. Not daring to turn directly on him, the group members engage in mutually destructive behavior: in fact, the group threatens suicide as the most extreme expression of dependence.[6] The need to punish the trainer is so strong, however, that his act of salvation would have to be magical indeed.

(iii) SUBPHASE 3: RESOLUTION-CATHARSIS

No such magic is available to the trainer. Resolution of the group's difficulties at this point depends upon the presence in the group of other forces, which have until this time been inoperative or ineffective.

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[6] Frequently groups select issues capable of fragmenting the group; e.g. desegregation in a group of northern liberals and conventional southerners. Thus we see evidence of what is so typical during this subphase, the "self-fulfilling prophecy". That is to say, certain strategic topics are predestined to splinter the group, which only serves to confirm its uselessness and disparatness.

Only the degenerative aspects of the chain of events in subphases 1 and 2 have been presented up to this point and they are in fact the salient ones. But there has been a simultaneous, though less obvious, mobilization of constructive forces. First, within each of the warring subgroups bonds of mutual support have grown. The group member no longer feels helpless and isolated. Second, the trainer's role, seen as weak or manipulative in the dependence orientation, can also be perceived as permissive. Third, his interpretations, though openly ignored, have been secretly attended to. And, as the second and third points imply, some members of the group are less the prisoners of the dependence-counterdependence dilemma than others. These members, called the independents, have been relatively ineffective in the group for two reasons. First, they have not developed firm bonds with other members in either of the warring subgroups, because they have not identified with either cause. Typically, they have devoted their energies to an unsuccessful search for a compromise settlement of the disagreements in the group. Since their attitudes toward authority are less ambivalent than those of other members, they have accepted the alleged reason for disagreement in the group—for example, whether a chairman should be elected—at face value, and tried to mediate. Similarly, they have tended to accept the trainer's role and interpretations more nearly at face value. However, his interpretations have seemed inaccurate to them, since in fact the interpretations have applied much less to them than to the rest of the group.[7]

Subphase 3 is the most crucial and fragile in group life up to this point. What occurs is a sudden shift in the whole basis of group action. It is truly a bridging phase; if it occurs at all, it is so rapid and mercurial that the end of subphase 2 appears to give way directly to the first subphase of Phase II. If it does not occur this rapidly and dramatically, a halting and arduous process of vacillation between Phases I and II is likely to persist for a long period, the total group movement being very gradual.

To summarize the state of affairs at the beginning of subphase 3 : 1. The group is polarized into two competing groups, each unable to gain or relinquish power. 2. Those group members who are uncommitted to either subgroup are ineffective in their attempts to resolve the conflict. 3. The trainer's contributions only serve to deepen the cleavage in the group.

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[7] The ambiguity of the situation, particularly the vague and uncertain role of the trainer, tends to induce black-white reaction patterns on the part of the highly ambivalent group members. What results, as Frenkel-Brunswik has stated, is the "neglect of reality and seeking for unqualified and unambiguous over-all acceptance and rejection of other people. The maintenance of such solutions requires the shutting out of aspects of reality which represent a possible threat to those solutions" (5). Another highly interesting approach is J. C. Flugel's *The Psycho-Analytic Study of the Family* (4).

As the group enters subphase 3, it is moving rapidly toward extinction: that is, splintering into two or three subgroups. The independents, who have until now been passive or ineffectual, become the only hope for survival, since they have thus far avoided polarisation and stereotypic behavior.[8] The imminence of dissolution forces them to recognize the fruitlessness of their attempts at mediation. For this reason, the trainer's hypothesis that fighting one another is off-target behavior is likely to be acted upon at this point. A group member may openly express the opinion that the trainer's presence and comments are holding the group back, suggest that "as an experiment" the trainer leaves the group "to see how things go without him". When the trainer is thus directly challenged, the whole atmosphere of the meeting changes. There is a sudden increase in alertness and tension. Previously, there had been much acting out of the wish that the trainer was absent, but at the same time a conviction that he was the *raison d' etre* of the group's existence—that it would fall apart without him. Previously, absence of the trainer would have constituted desertion, or defeat, fulfilment of the members' worst fears as to their own inadequacy or the trainer's. But now leaving the group can have a different meaning. General agreement that the trainer should leave is rarely achieved. However, after a little further discussion it becomes clear that he is at liberty to leave, with the understanding that he wishes to be a member of the group, and will return if and when the group is willing to accept him.

The principal function of the symbolic removal of the trainer is in its effect of freeing the group to bring into awareness the hitherto carefully ignored feelings toward him as an authority figure, and toward the group activity as an off-target dramatization of the ambivalence toward authority. The leadership provided by the independents (whom the group sees as having no vested interest in power) leads to a new orientation toward membership in the group. In the discussion that follows the exit of the trainer, the dependents' assertion that the trainer deserted and the counter-dependents' assertion that he was kicked out are soon replaced by consideration of whether his behavior was "responsible" or "irresponsible." The power problem is resolved by being defined in terms of member responsibilities, and the terms of the trainer's return to the group are settled by the requirement that he behaves as "just another member of the group". This phrase is then explained as meaning that he should take neither more nor less responsibility for what happens in the group than any other member.

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[8] Putting this in Newcomb's A-B-X system we see that the less attraction between A and B, the more strain toward symmetry "is limited to those X's (our independents) co-orientation toward which is required by the conditions of the association" (13).

The above description of the process does not do justice to the excitement and involvement characteristic of this period. How much transferable insight ambivalent members acquire from it is difficult to assess. At least within the life of the group, later activity is rarely perceived in terms of submission and rebellion.

An interesting parallel, which throws light on the order of events in group development, is given in Freud's discussion of the myth of the primal horde. In his version :

> These many individuals eventually banded themselves together, killed (the father), and cut him in pieces. . . They then formed the totemistic community of brothers all with equal rights and united by the totem prohibitions which were to preserve and to expiate the memory of the murder (6, p. 112).

The horde's act, according to Freud, was soon distorted into an heroic myth: instead of murder by the group, the myth held that the father had been overthrown single-handed by one person, usually the youngest son. In this attribution of the group act to one individual (the hero) Freud saw the "emergence of the individual from group psychology." His definition of a hero is ". . . a man who stands up manfully against his father and in the end victoriously overthrows him" (8, p. 9). (The heroic myth of Freud thus shares much in common with Sullivan's "delusion of unique individuality.")

In the training group, the member who initiates the events leading to the trainer's exit is sometimes referred to as a "hero" by the other members. Responsibility for the act is felt to be shared by the group, however, and out of their experience comes the first strong sense of group solidarity and involvement—a reversal of the original version, where the individual emerges from the group. This turn of events clarifies Freud's remark concerning the libidinal ties to the leader and to the other group members. Libidinal ties toward the other group members cannot be adequately developed until there is a resolution of the ties with the leader. In our terms, those components of group life having to do with intimacy and interdependence cannot be dealt with until those components having to do with authority and dependence have been resolved.

Other aspects of subphase 3 may be understood by investigating the dramatic significance of the revolt. The event is always marked in group history as "a turning-point", "the time we became a group", "when I first got involved", etc. The mounting tension, followed by sometimes uproarious euphoria, cannot be entirely explained by the surface events. It may be that the revolt represents a realization of important fantasies individuals hold in all organizations, that the emotions involved are undercurrents wherever rebellious and submissive tendencies toward existing authorities must be controlled. These are the themes of some of our great dramas—*Antigone*, *Billy Budd*, *Hamlet*, and our most recent folk-tale, *The Caine Mutiny*. But the event is more than the presentation of a drama, or an acting-out of fantasies. For it can be argued that the moments of stress and catharsis, when emotions are labile and intense, are the times in the group life when there is readiness for change. Leighton's analysis of a minor revolution at a Japanese relocation camp is worth quoting in full on this point :

> While this (cathartic) situation is fraught with danger because of trends which may make the stress become worse before it gets better, there is also an opportunity for administrative action that is not likely to be found in more secure times. It is fairly well recognized in psychology that at periods of great emotional stir the individual human being can undergo far-reaching and permanent changes in his personality. It is as if the bone structure of his systems of belief and of his habitual patterns of behavior becomes soft, is fused into new shapes and hardens there when the period of tension is over.. . . Possibly the same can be true of whole groups of people, and there are historical examples of social changes and movements occuring when there was widespread emotional tension, usually some form of anxiety. The Crusades, parts of the Reformation, the French Revolution, the change in Zulu life in the reign of Chaca, the Meiji Restoration, the Mormon movement, the Russian Revolution, the rise of Fascism, and alterations in the social sentiments of the United States going on at present are all to some extent examples. (12. p. 360).

Observers of industrial relations have made similar observations. When strikes result from hostile labour-management relations (as contrasted to straight wage demands), there is a fluidity of relationships and a wide repertoire of structural changes during this period not available before the strike act.[9]

So it is, we believe, with the training group. But what are the new values and behavior patterns that emerge out of the emotional experience of Phase I? Principally, they are acceptance by each member of his full share of responsibility for what happens in the group. The outcome is autonomy for the group. After the events of subphase 3, there is no more attribution of magical powers to the trainer—either the dependent fantasy that he sees farther, knows better, is mysteriously

[9] See A. Gouldner (10), W.F. Whyte, Jr. (22). Robert E. Park, writing in 1928, had considerable insight on some functions of revolution and change. See (14).

guiding the group and protecting it from evil, or the very similar counterdependent fantasy that he is manipulating the group, exploiting it in his own interests, that the experience is one of "brain-washing." The criterion for evaluating a contribution is no longer who said it, but what is said. Thereafter, such power fantasies as the trainer himself may have present no different problem from the power fantasies of any other group member. At the same time, the illusion that there is a struggle for power in the group is suddenly dissipated, and the contributions of other members are evaluated in terms of their relevance to shared group goals.

SUMMARY OF PHASE 1

The very word development implies not only movement through time, but also a definite order of progression. The group must traverse supphase 1 to reach subphase 2, and subphase 3 before it can move into Phase II. At the same time, lower levels of development coexist with more advanced levels. Blocking and regression occur frequently, and the group may be "stuck" at a certain phase of development. It would, of course, be difficult to imagine a group remaining long in subphase 3 —the situation is too tense to be permanent. But the group may founder for some time in subphase 2 with little movement. In short, groups do not inevitably develop through the resolution of the dependence phase to Phase II. This movement may be retarded indefinitely. Obviously much depends upon the trainer's role. In fact, the whole dependence modality may be submerged by certain styles of trainer behavior. The trainer has a certain range of choice as to whether dependency as a source of communication distortion is to be highlighted and made the subject of special experiential and conceptual consideration. The personality and training philosophy of the trainer determine his interest in introducing or avoiding explicity consideration of dependency.[10]

There are other important forces in the group besides the trainer, and these may serve to facilitate or block the development that has been described as typical of Phase I. Occasionally there may be no strong independents capable of bringing about the barometric events that precipitate movement. Or the leaders of opposing subgroups may be the most assertive members of the group. In such cases the group may founder permanently in subphase 2. If a group has the misfortune to experience a "traumatic" event early in its existence—exceedingly schizoid behavior by some member during the first few meetings, for example—anxieties of other members may be aroused to such an extent that all culturally suspect behavior, particularly open expression of feelings, is strongly inhibited in subsequent meetings.

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[10] This is elaborated further in another paper, "A Theory of Training by Group Methods", by H. A. Shepard and W. G. Bennis (See 18).

Table I summarizes the major events of Phase I, as it typically proceeds. This phase has dealt primarily with the resolution of dependence needs. It ends with acceptance of mutual responsibility for the fate of the group and a sense of solidarity, but the implications of shared responsibility have yet to be explored. This exploitation is reserved for Phase II, which we have chosen to call the Interdependence Phase.

B. PHASE II: INTERDEPENDENCE

The resolution of dependence problems marks the transfer of group attention (and inattention) to the problems of shared responsibility. Sullivan's description of the change from childhood to the juvenile era seems pertinent here :

> The juvenile era is marked off from childhood by the appearance of an urgent need for compeers with whom to have one's existence. By 'compeers' I mean people who are on our level, and have generically similar attitudes toward authoritative figures, activities and the like. This marks the beginning of the juvenile era, the great developments in which are the talents for cooperation, competition and compromise (20, pp. 17-18. Emphasis ours).

The remaining barriers to valid communication are those associated with orientations toward interdependence : i.e. intimacy, friendship, identification. While the distribution of power was the cardinal issue during Phase I, the distribution of affection occupies the group during Phase II.

(*iv*) SUBPHASE 4: ENCHANTMENT-FLIGHT

At the outset of subphase 4, the group is happy, cohesive, relaxed. The atmosphere is one of "sweetness and light." Any slight increase in tension is instantly dissipated by joking and laughter. The fighting of Phase I is still fresh in the memory of the group, and the group's efforts are devoted to patching up differences, healing wounds and maintaining a harmonious atmosphere. Typically, this is a time of merrymaking and group minstrelsy. Coffee and cake may be served at the meetings. Hours may be passed in organizing a group party. Poetry or songs commemorating the important events and persons in the group's history may be composed by individuals or, more commonly,

TABLE I

PHASE I DEPENDENCE—POWER RELATIONS*

	Subphase 1 *Dependence-submission*	*Subphase* 2 *Counterdependence*	*Subphase* 3 *Resolution*
1. Emotional Modality	Dependence—Flight.	Counterdependence—Fight. Off-target fighting among members. Distrust of staff member. Ambivalence.	Pairing. Intense involvement in group task.
2. Content Themes	Discussion of interpersonal problems external to training groups.	Discussion of group organization; i.e. what degree of structuring devices is needed for "effective" group behavior?	Discussion and definition of a trainer role.
3. Dominant Roles (Central Persons)	Assertive, aggressive members with rich previous organizational or social science experience.	Most assertive counterdependent and dependent members. Withdrawal of less assertive independents & dependents.	Assertive independents.
4. Group Structure	Organized mainly into multi-subgroups based on members' past experiences.	Two tight subcliques consisting of leaders and members, of counter dependents and dependents.	Group unifies in pursuit of goal and develops internal authority system.
5. Group Structure	Self-oriented behavior reminiscent of most new social gatherings.	Search for consensus mechanism: Voting, setting up chairmen, search for "valid" content subjects.	Group members take over leadership roles formerly perceived as held by trainer.
6. Group movement facilitated by:	Staff member abnegation of traditional role of structuring situation, setting up rules of fair play, regulation of participation.	Disenthrallment with staff member coupled with absorption of uncertainty by most assertive counterdependent and dependent individuals. Subgroups form to ward off anxiety.	Revolt by assertive independents (catalysts) who fuse subgroups into unity by initiating and engineering trainer exit (barometric event).
7. Main Defenses	Projection Denigration of authority.		Group moves into Phase II.

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*Course terminates at the end of 17 weeks. It is not uncommon for groups to remain throughout the course in this phase.

as a group project. All decisions must be unanimous during this period, since everyone must be happy, but the issues on which decisions are made are mostly ones about which group members have no strong feelings. At first the cathartic, healing function of these activities is clear; there is much spontaneity, playfulness and pleasure. Soon the pleasures begin to wear thin.

The myth of mutual acceptance and universal harmony must eventually be recognized for what it is. From the beginning of this phase there are frequent evidences of underlying hostilities, unresolved issues in the group. But they are quickly, nervously smoothed over by laughter or misinterpretation. Subphase 4 begins with catharsis, but that is followed by the development of a rigid norm to which all members are forced to conform: "Nothing must be allowed to disturb our harmony in the future; we must avoid the mistakes of the painful past." Not that members have forgotten that the painful past was a necessary preliminary to the autonomous and (it is said) delightful present, though that fact is carefully overlooked. Rather, there is a dim realization that all members must have an experience somewhat analogous to the trainer's in subphase 3 before a mutually understood, accepted and realistic definition of their own roles in the group can be arrived at.

Resistance of members to the requirement that harmony be maintained at all costs appears in subtle ways. In open group discussion the requirement is imperative : either the member does not dare to endanger harmony with the group or to disturb the *status quo* by denying that all problems have been solved. Much as members may dislike the tedious work of maintaining the appearance of harmony, the alternative is worse. The house of cards would come tumbling down, and the painful and exacting work of building something more substantial would have to begin. The flight from these problems takes a number of forms. Group members may say, "We've had our fighting and are now a group. Thus, further self-study is unnecessary." Very commonly, the possibility of any change may be prevented by not coming together as a total group at all. Thus the members may subgroup through an entire meeting. Those who would disturb the friendly subgroups are accused of "rocking the boat."

The solidarity and harmony become more and more illusory, but the group still clings to the illusion. This preservation is in a way a consequence of the deprivation that members have experienced in maintaining the atmosphere of harmony. Maintaining it forces members to behave in ways alien to their own feelings; to go still further in group involvement would mean a complete loss of self. The group is therefore torn by a new ambivalence, which might be verbalized as follows : 1. "We all love one another and therefore we must maintain the solidarity of the group and give up whatever is necessary of our selfish desires." 2. "The group demands that I sacrifice my identity as a person; but the group is an evil mechanism which satisfies no dominant needs." As this subphase comes to a close, the happiness that marked its beginning is maintained only as a mask. The "innocent" splitting of the group into subgroups has gone so far that members will even walk around the meeting table to join in the conversation of a subgroup rather than speak across the table at the risk of bringing the whole group together. There is a certain uneasiness about the group; there is a feeling that "we should work together but cannot." There may be a tendency to regress to the orientation of sub-phase 1 : group members would like the trainer to take over.

To recapitulate : Subphase 4 begins with a happy sense of group belongingness. Individual identity is eclipsed by a "the group is bigger than all of us" sentiment. But this integration is short-lived: it soon becomes perceived as a fake attempt to resolve interpersonal problems by denying their reality. In the later stages of this subphase, enchantment with the total group is replaced by enchantment with one's subgroup, and out of this breakdown of the group emerges a new organization based on the anxieties aroused out of this first, suffocating, involvement.

(*v*) SUBPHASE 5: DISENCHANTMENT-FIGHT

This subphase is marked by a division into two subgroups—paralleling the experience of subphase 2—but this time based upon orientations toward the degree of intimacy required by group membership. Membership in the two subgroups is not necessarily the same as in subphase 2: for now the fragmentation occurs as a result of opposite and extreme attitudes toward the degree of intimacy desired in inter-personal relations. The counterpersonal members band together to resist further involvement. The overpersonal members band together in a demand for unconditional love. While these subgroups appear as divergent as possible, a common theme underlies them. For the one group, the only means seen for maintaining self-esteem is to avoid any real commitment to others; for the other group, the only way to maintain self-esteem is to obtain a commitment from others to forgive everything. The subgroups share in common the fear that intimacy breeds contempt.

This anxiety is reflected in many ways during subphase 6. For the first time openly disparaging remarks are made about the group. Invidious comparisons are made between it and other groups. Similarly, psychology and social science may be attacked.[11] The inadequacy of the group as a basis for self-esteem is dramatized in many ways—from stating "I don't care what you think", to boredom, to absenteeism. The overpersonals insist that they are happy and comfortable, while the counterpersonals complain about the lack of group morale. Intellectualization by the over personals frequently takes on religious overtones concerning Christian love, consideration for others, etc. In explanations of member behavior, the counterpersonal members account for all in terms of motives having nothing to do with the present group; the overpersonals explain all in terms of acceptance and rejection in the present group.

Subphase 5 belongs to the counterpersonals as subphase 4 belonged to the overpersonals. Subphase 4 might be caricatured as hiding in the womb of the group; subphase 5 as hiding out of sight of the group. It seems probable that both of these modalities serve to ward off anxieties associated with intimate interpersonal relations. A theme that links them together can be verbalized as follows: "If others really knew me, they would reject me." The overpersonal's formula for avoiding this rejection seems to be accepting all others so as to be protected by the others' guilt; the counter-personal's way is by rejecting all others before they have a chance to reject him. Another way of characterizing the counterpersonal orientation is in the phrase, "I would lose my identity as a member of the group." The corresponding overpersonal orientation reads, "I have nothing to lose by identifying with the group." We can now look back on the past two subphases as countermeasures against loss of self esteem; what Sullivan once referred to as the greatest inhibition to the understanding of what is distinctly human, "the overwhelming conviction of self-hood—this amounts to a delusion of unique individuality". The sharp swings and fluctuations that occurred between the enchantment and euphoria of subphase 4 and the disenchantment of subphase 5 can be seen as a struggle between the "institutionalization of complacency" on the one hand and anxiety associated with fantasy speculations about intimacy and involvement on the other. This dissociative behavior serves a purpose of its own: a generalized denial of the group and its meaning for individuals. For if the group is important and valid then it has to be taken seriously. If it can wallow in the enchantment of subphase 4, it is safe; if it can continually vilify the goals and objectives of the group, it is also safe. The disenchantment theme in subphase 5 is perhaps a less skilful and more desparate security provision with its elaborate wall of defenses than the "group mind" theme of subphase 4. What should be stressed is that both subphase defenses were created almost entirely on fantastic expectations about the consequences of group involvement. These defenses are homologous to anxiety as it is experienced by the individual; i.e. the state of "anxiety arises as a response to a situation of danger and which will be reproduced thenceforward whenever such a situation recurs" (7, p. 72). In sum, the past two subphases were marked by a conviction that further group involvement would be injurious to members' self-esteem.

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[11] This frequently comes about as result of the intellectualisation process that accompanies this subphase. Members raise the question, "Are we a Group?" Any answer offered is distorted and transformed into an attack on the inadequacies of social science research. The guise of intellectual concern only serves as a foil to indicate the failure and impotence of the group, another example of the "self-fulfiling prophecy".

(*vi*) SUBPHASE 6: CONSENSUAL VALIDATION

In the groups of which we write, two forces combine to press the group toward a resolution of the interdependency problem. These are the approaching end of the training course, and the need to establish a method of evaluation (including course grades).

There are, of course, ways of denying or avoiding these realities. The group can agree to continue to meet after the course ends. It can extricate itself from evaluation activities by asking the trainer to perform the task, or by awarding a blanket grade. But turning this job over to the trainer is a regression to dependence; and refusal to discriminate and reward is a failure to resolve the problems of interdependence. If the group has developed in general as we have described, the reality of termination and evaluation cannot be denied, and these regressive modes of adaptation cannot be tolerated.

The characteristic defenses of the two subgroups at first fuse to prevent any movement toward the accomplishment of the evaluation and grading task. The counterpersonals resist evaluation as an invasion of privacy: they foresee catastrophe if members begin to say what they think of one another. The overpersonals resist grading since it involves discriminating among the group members. At the same time, all members have a stake in the outcome of evaluation and grading. In avoiding the task, members of each subgroup are perceived by members of the other as "rationalizing", and the group becomes involved in a vicious circle of mutual disparagement. In this process, the fear of loss of self-esteem through group involvement is near to being realized. As in subphase 3, it is the independents—in this case those whose self-esteem is not threatened by the prospect of intimacy—who restore members' confidence in the group. Sometimes all that is required to reverse the vicious circle quite dramatically is a request by an independent for assessment of his own role. Or it may be an expression of confidence in the group's ability to accomplish the task.

The activity that follows group commitment to the evaluation task does not conform to the expectations of the overpersonal or counterpersonal members. Its chief characteristic is the willingness and ability of group members to validate their self-concepts with other members. The fear of rejection fades when tested against reality. The tensions that developed as a result of these fears diminish in the light of actual discussion of member roles. At the same time, there is revulsion against "capsule evaluations" and "curbstone psychoanalysis." Instead, what ensues is a serious attempt by each group member to verbalise his private conceptual scheme for understanding human behavior—his own and that of others. Bringing these assumptions into explicit communication is the main work of subphase 6. This activity demands a high level of work and of communicative skill. Some of the values that appear to underlie the group's work during this subphase are as follows: 1. Members can accept one another's differences without associating "good" and "bad" with the differences. 2. Conflict exists but is over substantive issues rather than emotional issues. 3. Consensus is reached as a result of rational discussion rather than through a compulsive attempt at unanimity. 4. Members are aware of their own involvement, and of other aspects of group process, without being overwhelmed or alarmed. 5. Through the evaluation process, members take on greater personal meaning to each other. This facilitates communication and creates a deeper understanding of how the other person thinks, feels, behaves; it creates a series of personal expectations, as distinguished from the previous, more stereotyped, role expectations.

The above values, and some concomitant values, are of course very close to the authors' conception of a "good group". In actuality they are not always achieved by the end of the group life. The prospect of the death of the group, after much procrastination in the secret hope that it will be over before anything can be done, is likely to force the group into strenuous last minute efforts to overcome the obstacles that have blocked its progress[12]. As a result, the sixth subphase is too often hurried and incomplete. If the hurdles are not overcome in time, grading is likely to be an exercise that confirms members' worst suspicions about the group. And if role evaluation is attempted, either the initial evaluations contain so much hostile material as to block further efforts or evaluations are so flowery and vacuous that no one, least of all the recipient, believes them.

In the resolution of interdependence problems, member-personalities count for even more than they do in the resolution of dependence problems. The trainer's behavior is crucial in determining the group's ability to resolve the dependence issue, but in the interdependence issue the group is, so to speak, only as strong as its weakest link. The exceedingly dependent group member can ride through Phase I with a fixed belief in the existence of a private relationship between himself and the trainer; but the person whose anxieties are intense under the threats associated with intimacy can immobilize the group. (*Table II* summarizes the major events of Phase II.)

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[12] Cf. S. Freud (9, pp. 316-57). The meaning of termination of treatment and of its consequences for the patient is discussed here.

CONCLUSIONS

Dependence and interdependence—power and love, authority and intimacy—are regarded as the central problems of group life. In most organizations and societies, the rules governing the distribution of authority and the degree of intimacy among members are prescribed. In the human relations training group, they are major areas of uncertainty. While the choice of these matters as the focus of group attention and experience rests to some extent with the trainer, his choice is predicated on the belief that they are the core of interpersonal experience. As such, the principal obstacles to valid interpersonal communication lie in rigidities of interpretation and response carried over from the anxious experiences with particular love or power figures into new situations in which they are inappropriate. The existence of such autisms complicates all discussion unduly and in some instances makes an exchange of meanings impossible.

Stating the training goal as the establishment of valid communication means that the relevance of the autistic response to authority and intimacy on the part of any member can be explicitly examined, and at least a provisional alternative formulated by him. Whether this makes a lasting change in the member's flexibility, or whether he will return to his more restricted formula when confronted with a new situation, we do not know, but we expect that it varies with the success of his group experience—particularly his success in understanding it.

We have attempted to portray what we believe to be the typical pattern of group development, and to show the relationship of member orientations and changes in member orientations to the major movements of the group. In this connection, we have emphasized the catalytic role of persons unconflicted with respect to one or the other of the dependence and interdependence areas. This power to move the group lies mainly in his freedom from anxiety-based reactions to problems of authority (or intimacy): he has the freedom to be creative in searching for a way to reduce tension.

We have also emphasized the "barometric event" or event capable

TABLE II

PHASE II. INTERDEPENDENCE—PERSONAL RELATIONS

	Subphase 4—Enchantment	*Subphase 5—Disenchantment*	*Subphase 6—Consensual Validation*
Emotional Modality	Pairing-Flight.	Fight-Flight.	Pairing, understanding, acceptance.
	Group becomes a respected icon beyond further analysis.	Anxiety reactions. Distrust and suspicion of various group members.	
Content Themes	Discussion of "group history" and generally salutary aspects of course, group and membership.	Revival of content themes used in Subphase 1: What is a group? What are we doing here? What are the goals of the group? What do I have to give up—personally—to belong to this group? (How much intimacy and affection is required?) Invasion of privacy vs. "group giving." Setting up proper codes of social behavior.	
Dominant Roles (Central Persons)	General distribution of participation for first time. Overpersonals have salience.	Most assertive counterpersonal and overpersonal individuals with counterpersonals especially salient.	Assertive independents.
Group Structure	Solidarity, fusion. High degree of camaraderie and suggestibility. LeBon's description of "group mind" would apply here.	Restructuring of membership into two competing predominant sub-groups made up of individuals who share similar attitudes concerning degree of intimacy required in social interaction, i.e. the counterpersonal and overpersonal groups. The personal individuals remain uncommitted but act according to needs of situation.	Diminishing of ties based on personal orientation. Group structure now presumably appropriate to needs of situation based on predominantly substantive rather than emotional orientations. Consensus significantly easier on important issues.

	Subphase 4—Enchantment	*Subphase 5—Disenchantment*	*Subphase 6—Consensual Validation*
Group Activity	Laughter, joking humor. Planning out-of-class activities such as parties. The institutionalization of happiness to be accomplished by 'fun' activities. High rate of interaction and participation.	Disparagement of group in a variety of ways: high rate of absenteeism, tardiness, balkiness in initiating total group interaction, frequent statements concerning worthlessness of group, denial of importance of group. Occasional member asking for individual help finally rejected by the group.	Communication to others of self-system of interpersonal relation; i. e. making conscious to self and others aware of conceptual system one uses to predict consequences of personal behavior. Acceptance of group on reality terms.
Group movement facilitated by:	Independence and achievement attained by trainer-rejection and its concomitant, deriving consensually some effective means for authority and control. (Subphase 3 rebellion bridges gap between Subphase 2 and 4.)	Disenchantment of group as a result of fantasied expectations of group life. The perceived threat to self-esteem that further group involvement signifies creates schism of group according to amount of affection and intimacy desired. The counterpersonal and over-personal assertive individuals aleviate source of anxiety by disparaging or abnegating further group involvement. Sub-groups form to ward off anxiety.	The external realities, group termination and the prescribed need for a course grading system, comprise the barometric event. Led by the personal individuals, the group tests convictions concerning group reality and reduces autistic involvement.
Main Defences	Denial, isolation, intellectualization, and alienation.		

of moving the group from one phase to the next. The major events of this kind are the removal of the trainer as part of the resolution of the dependence problems; and the evaluation-grading requirements at the termination of the course. Both these barometric events require a catalytic agent in the group to bring them about. That is to say, the trainer-exist can take place only at the moment when it is capable of of symbolizing the attainment of group autonomy, and it requires a catalytic agent in the group to give it this meaning. And the grading assignment can move the group forward only if the catalytic agent can reverse the vicious circle of disparagement that precedes it.

Whether the incorporation of these barometric events into the training design merely makes our picture of group development a self-fulfilling prophecy, or whether, as we wish to believe, these elements make dramatically clear the major forward movements of the group, and open the gate for a flood of new understanding and communication, can only be decided on the basis of more, and more varied, experience.

The evolution from Phase I to Phase II represents not only a change in emphasis from power to affection, but also from role to personality. Phase I activity generally centers on broad role distinctions such as class, ethnic background, professional interests, etc.; Phase II activity involves a deeper concern with personality modalities, such as reaction to failure, warmth, retaliation, anxiety, etc. This development presents an interesting paradox. For the group in Phase I emerged out of a heterogeneous collectivity of individuals; the individual in Phase II emerged out of the group. This suggests that group therapy, where attention is focused on individual movement, begins at the least enabling time. It is possible that, before group members are able to help each other, the barriers to communication must be partially understood.

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DEXTER DUNPHY

A Three-Dimensional System for the Analysis of Interaction in Primary Groups

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THIS PAPER is a brief introduction to a category system designed to score some important dimensions of interpersonal behavior in primary groups such as families, gangs and work groups. It arose out of a thorough review of many other systems used for specific research projects and, in particular, it is based on a number of factor analytic studies of dimensions of interpersonal behavior.

The category system is derived from three dimensions of inteper-sonal behavior which seem to be of central significance to human action. We have named these three dimension *Dominance*, *Goal Direction*, and *Affectivity*. Each dimension has a positive and a negative pole. For the dominance dimension, for example, the poles are domination and submision. Each of these poles has three levels of intensity which are designated by action names to indicate the type of activity which would rate being scored at that level of intensity. In the domination end of the dominance dimension, for example, the three levels are indicated as follows :

D3(i.e., highly dominating behavior) command, dominate, downgrade other, upgrade self, etc.
D2 (i.e. moderately dominating behavior) advise, initiate, counsel, discount, etc.
D1 (i.e. slightly dominant behavior) permit, consent, allow, deny, defend self, etc.

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Submission represents behavior which ranges from "going along with" to downgrading oneself (See Table 1).

The affectivity dimension has two poles: affiliation and hostility. Table 1 gives the kinds of activity which are regarded as instances of affective behavior. Note that affectivity is essentially interpersonal.

The dominance and affectivity dimensions are fairly easy to conceptualize and somewhat self-explanatory. The final dimension of goal direction requires more explanation. This dimension has two poles which we refer to as *work* and *expression.* The work pole of the goal direction dimension is concerned with the active acceptance of task-oriented or goal-oriented behavior. It refers to behavior disciplined by the group goals and group norms. The most extreme kind of behavior here is reasserting the importance of task goals or redirecting attention to them, and endeavoring to enlist motivation in the service of group goals. Behavior on the expressive pole is expressive in the sense of being directed to the expression of one's own inner feelings and fantasies. There is no value judgment involved here. Even successful task performance requires periods of relaxation and tension release. Table I gives the "calibration" of behavior scored on this dimension. Note that expression is *not* primarily interpersonal in intent—it is aimed at relieving inner tensions although, of course, it has interpersonal effects.

Directions for Scoring: We have supplied examples of the types of behavior we consider may be appropriately coded into these categories. We will now proceed to illustrate the coding procedures we recommend.

The first coding problem centers about identifying the appropriate units to be scored in the flow of communication. We define one unit as "each-distinct, uninterrupted flow of communication by an individual, and major category shifts within it." Such a definition makes it impossible to separate neatly the designation of units from the process of categorization. The first stage of unitization, however, is very simple. A new unit begins each time one person begins to speak after another, or initiates a remark in a new encounter. For example:

> MIKE: Hey, Joe, what did you do with the answers to this problem ?
> Are they in this book here ?
> DAN: It's over here.

As Mike's flow of speech was initiated, the observer would score the appropriate category after the first sentence (in this case category W2, asks for information). Since the second sentence does not represent a category shift, the first score suffices for the whole intervention. Dan's answer then marks the beginning of another unit which is also

TABLE 1

INTERACTION CATEGORIES

Dominance	Domination	D3	Command, dominate, downgrade other, upgrade self, refuse to comply.
		D2	Advise, initiate, counsel, discount.
		D1	Permit, consent, allow, deny, defend self, attempt to maintain own status.
	Submission	S1	Submissive agreement, go along with, admit confusion, excuse self, seek permission or consent.
		S2	Comply, seek advice or counsel.
		S3	Yield, submit, downgrade self, upgrade other.
Goal Direction	Work	W3	Exhort to task, reinforce group goals, exult in task achievement.
		W2	Ask or give opinion or information related to group goals, busy oneself actively with the job.
		W1	Signal attentiveness, continue to work, ignore fantasy of other.
	Expression	E1	Engage in out of field activity, drift, giggle, talk to oneself or engage other in side conversation.
		E2	Cry, scream, laugh, joke, express tension, unhappiness, happiness, excitement.
		E3	Engage in active play, tell story or extended fantasy, act out at length.
Affectivity	Affiliation	A3	Express affection or love.
		A2	Support other.
		A1	Accept other, greet.
	Hostility	H1	Avoid or ignore other.
		H2	Scold, reject or criticize other.
		H3	Attack other.

scored in category W2. We can then imagine the conversation continuing :

> MIKE: You stupid ass, didn't I tell you to put them over here ? Oh what the hell, I'm leaving (leaves).

In this case the first sentence would be scored H3 (attack). The latter sentence and accompanying behavior El (engages in out-of-field activity).

Because this is a three-dimensional scheme, we allow the possibility of multiple scoring. Presumably a single act may sometimes express both domination and affection (e.g., teacher to pupil: "Good boys like you always put their toys away, don't they ?") or in some cases may be weighted on all 3 dimensions, (e.g., "Let's all work together on this one, guys.") might be scored D2 (initiate), W3 (exhort to task) and A2 (support).

We do, however, place some limitations on multiple scoring. First we demand that, if an act is to be multiply scored, it must reach the second level of intensity on each of the dimensions scored. Thus, "Yes, you're right" cannot be scored S1 (agree) and A1 (accept), but only S1 or A1.

In order to facilitate multiple scoring, we suggest that the observer keep a combination of dimensions in mind. Figure I gives our estimate of the combinations of sets of two dimensions. If the observer keeps the scheme in mind, when he hears, for example, "Let's work on this problem now" he will see this as a clear case of *guidance.* As *guidance* is a fusion of *dominance* and *task advancement*, he will then double score the act in these two dimensions. To be double scored, the intensity of the act must be at least 2,2. We leave it to the observer to judge whether the intensity on either or both dimensions should be raised to 3.

Actually, the scheme is best kept in mind by thinking of it as a three dimensional space within a globe. Each new act may be placed in a particular position in the space and will be weighted on the three orthogonal axes of the space. As a convention, we find it useful to regard the domination dimension as the vertical axis, with dominance upward; to regard goaldirection as the forward and backward axis with work forward; and to regard affectivity as the left-right axis with affiliation to the right. Adopting this convention, one can memorize the fusions of the various dimensions very easily and sense fairly readily just where in the space a particular act should be scored.

Another way of conceptualizing the scoring procedure, for those who are less visually minded, is to see it as a set of consecutive decisions. The sequence is as follows : (1) Identify the unit to be scored.

(2) Does it express dominance ? If yes, domination or submission ? (3) If one of these, how intense is the expression ? (Level 1, 2, or 3). This is repeated for each dimension until the act is scored for its implications on each dimension.

The rate of scoring can be built up over time and an attempt should be made to score as large a percentage of acts as possible. If scoring is being done concurrently with the ongoing interaction, it is usually not possible to score all acts. If scoring is done from a recording, all verbal acts can be scored but non-verbal acts will not be scored unless remembered or noted down at the time the action occurred. If scoring is done concurrently, it is necessary for the researcher to note who is initiating the interaction (the speaker) and to whom the act is addressed (the recipient). It is often easiest to assign each group member a number (or use initials) and it is conventional to designate the group as zero. For instance, if person 2 asks the advice of the group as a whole, the act would be scored 2: S2: 0.

The following is a transcript of a few minutes of interaction in a T group. The group's task is to analyze interaction between members —which makes it somewhat difficult to score the task dimension. However, the heated nature of the exchange between two members D (a woman) and J (a man) makes it an interesting case of a developing interpersonal interchange. The transcript begins just after J has asked D to summarize the cutting (in his view) remarks she had made about him in the previous session. He has asked her to do this for the benefit of another member who was absent. There is a short interchange among some other members before the conversation is given over to J and D again but the rest of the transcript is largely given over to them.

T GROUP INTERACTION

The group task is to analyze interaction between members.

D. Is it that you want me to repeat what I said about you ? (W2)
J. In a way. . . well I'm asking you to give us a summary as a start. (D1)
*Did you continue with B after the last time ? (W2)
*In the beginning J asked how I felt about what had happened. I responded very briefly. . . I can't quite remember how I moved from me to D. That was pretty much the topic of the whole period. We went back to you at the end of the whole period.(W1)
*Very, very nice. (A1)
*J tried to say that he was disappointed if I really didn't resent the group, that he didn't want me to feel this way. I was trying to

explain. . . he was trying to say (W1). . . negative criticism could be given for positive purposes in this group. . . may be a necessary thing to say (W2) I hadn't expressed resentment but J and others ...(W1)

J. D did say something to me that was a bit of a shock (E2). . . I tried to consider it impartially. Unsure how well I succeeded in convincing myself that her statements were attempts to be analytic and mature. Then I came back with a somewhat futile defense (S3) saying that regardless of what my presentation may have been, I thought that some of the statements were valuable and she said: "well, that was my opinion" and stuff, so I don't know. But it was quite a sharp thing toward me I thought. At least I felt it was a blow. (E2)

*At least two times individuals remarked "you're a fake" to somebody. Once to D I think. D and someone else once yelled out "you're a fake" to somebody else. (W2)

*D said "You're a fake" to J (W1)

*Yes, that's right. (S1)

*This was something I wanted to bring up again. It ties in with what you've just said too because D was talking about your manner of analysing. (D2)

J. She desire. . . Just a couple of statements she made, she managed to just about knock the props out (E2) and I think she was very glad to see this. . . . (H2) in a way. (S1) And I don't know what my response should have been. Afterward I thought well may be I should have said "you bitch!" you know. . .but I didn't. . . there have been a number of attempts, D, to pull you into the group or make you find out what you're like. You pushed them off. And a lot of your pushing off has been because you're purely pissed off at the group because sometimes you haven't been taken in. Caught up in a beautiful little world. . . (H3)

D. Who has made attempts to draw me or anyone else into the group? (H2, W2)

J. What a nonsensical statement! (H3)

D. You made the statement. I asked a question.
(Laughter E2)

J. You just asked the question. I'm just saying. . . O.K., what a nonsensical question. (S1)

D. I agree with you. (D1)
(Pause)
*Something which struck me last time. Comments were being made about D and statements about not needing the group. (W1) There's a possibility that D may be going through right now outside some rather difficult things which cause her to defensive-

ly defend herself against them and be able to keep going, to not at this time admit that she has terrific needs and so forth and therefore when she is not just necessarily well integrated into the group . . . (A2)

J. I think that this just. . . part of that may be true. (S1) But I think that she wants us to know that there are problems outside of the group or to think that there are problems outside of the group. I think that she has also decided people have questions. Say well you haven't shown too much response, you haven't shown you are affected by the statements which have come out and she's said "You know I'm going to show them." So now we really don't know what her reactions are. (W2) But we have all sorts, we have a fantasy you know, it's easy to build up a fantasy that this girl is sitting in here, and silently pulling them into her great big bosom, you know. And I think that she wants to project this image, that she can take it all in, that she's suffering and she does feel. In other words, what she projects. It's easy to project any number of images into that. She has fostered the impression that she is a very feeling sort of person, even though she doesn't show it. (H3, E3)

*There have been a number of reactions to D. I guess L and DN have been incredulous about the genuineness of her affect . . . JD has always come to her defense. . . clearly the person D gets to most is J. . . . (W2)

J. Doesn't seem fair to me, you know. (E2) Gee, I can sit there and I try to react in any number of ways. She's sitting in an unassailable position. (H2, S3)

D. J, well if our first little run-in hadn't meant so much to you as you indicated and felt last week, why is it that all through the year ever since that time, there has been this thing between us ? (H2)

J. I've been trying to figure this out all year long. I think my reaction to you is overdetermined. I think. . . I don't know. . . I don't know. (S1) I just won't stand for you picking at me. O.K., you're getting to me but I won't take too much more of it you know. And even if it's in my imagination, I still won't take too much more of it. Just you know, stay away from me, bitch ! (H3)

D. Well, I hadn't picked at you before last time. (D2, H2)

J. Oh come off it ! (H3)

*It's not always that D comes to you. You invite it. (W2)

J. Part of it might be a masochistic delight, O.K. ? But I don't know. It might be that I. . . I don't know (S1) . . . may be I like feeling like an ass, (S3) or something like this. But I don't know. I'm saying that I do know that many of my efforts which I think have been fairly valid in one or two statements, and I was concerned about what she thought about them. She managed to say, "Ha, you're being like a playing, grownup, little boy." And I'm incredibly sensitive in this spot. (E2)

USING INTERACTION SCORES

Having coded interaction in the manner indicated above we want to make use of the scores we have obtained. These scores may be put to a number of uses and we discuss some of these below.

We have indicated that the researcher, observing group interaction, notes the initiator of each act, the person to whom the act is directed, and categorises the act into one of the interaction categories. One way of summarizing the resulting data is to compile what is known as an interaction matrix. This is simply a tabulation of the number of each kind of act addressed by each individual in the group to each other individual, and to the group as a whole, with appropriate subtotals and totals. (See Figure II for the layout of such a matrix.)

The first thing we can derive from the interaction matrix is who talks to whom and how much. We can rank people in terms of their total participation and we can quickly see which individuals do not interact with each other at all. As the total interaction rates are broken down by category, we can also compare the interaction profiles for different individuals in the group. We can either do this by comparing the raw frequencies in the table or the percentage (of total acts initiated) which is devoted, for example, by Joe and Bill to dominant behavior. We can also compare each individual's interaction profile with the interaction profile of the group as a whole to see who departs most from the "average" picture of the group.

The interaction profile can also be used to study phases in group process or development. The time the group spends in interacting can be divided into appropriate time units (every quarter hour, for example, of an hour's session), and an interaction matrix formed for each time unit. Changes in cell frequencies from one session or part of the session to the next may be used to indicate general trends in group development or repetitive cycles of group behavior.

With small groups it is sometimes useful to convert part or all of the matrix into a diagram similar to a sociogram in order to visualize relationships more easily. For example, Dunphy, in studying a management meeting which was marked by a great deal of conflict, took the negativity rates from the interaction matrix and plotted them as shown in Figure III. The diagram illustrates that Reiss is literally bombarded with negative acts, a response to the deviant role he was playing in this session. A chart similar to this can be made for interaction in any category or for total communication rates.

FIGURE 1.
FUSIONS FOR COMBINATIONS OF DIMENSIONS

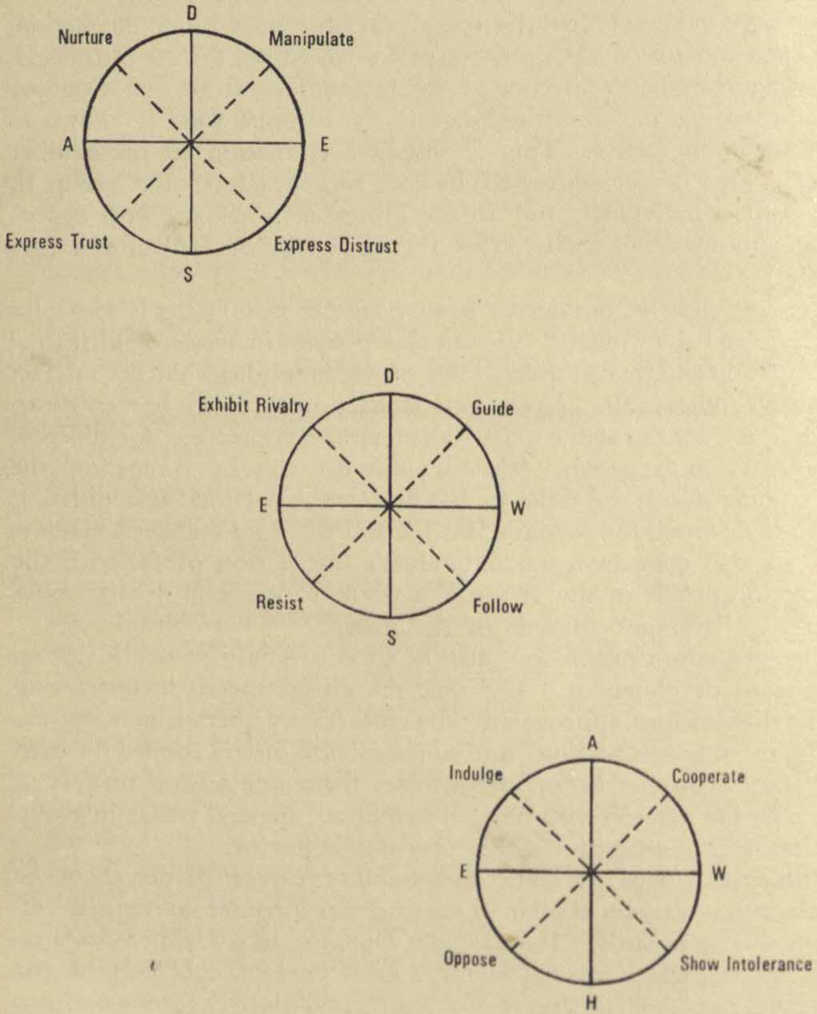
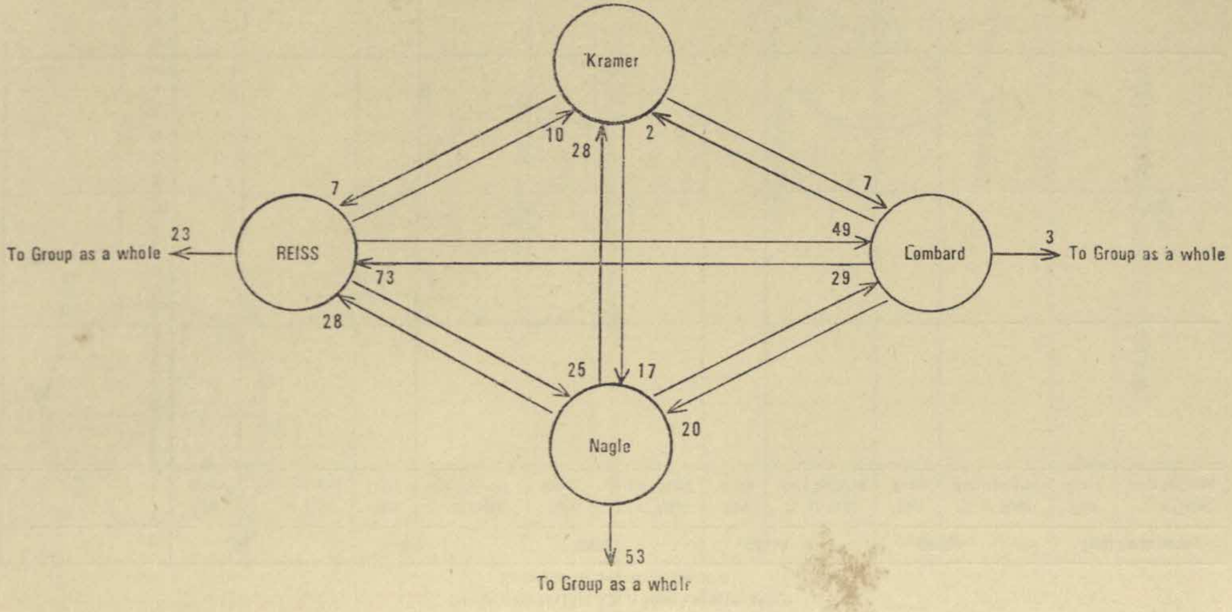


FIGURE 2
INTERACTION MATRIX FOR A FOUR - PERSON GROUP
Persons to whom acts are initiated

Persons initiating Act

		JOE		BILL		MARY		SUSAN		GROUP		Total Participation	
		Raw Score	% of Total Acts Initiated	Raw Score	% of Total Acts Initiated	Raw Score	% of Total Acts Initiated	Raw Score	% of Total Acts Initiated	Raw · Score	% of Total Acts Initiated	Raw Score	% of Total Acts Initiated
JOE	D S W E A H	▨	▨										
BILL	D S W E A H			▨	▨								
MARY	D S W E A H					▨	▨						
SUSAN	D S W E A H							▨	▨				
Total Number of Acts Received													

FIGURE 3
RATES OF AFFECTIVELY NEGATIVE INTERACTION



From: Lawrence P.R. and Dunphy D.C. Commenting on the Midway Food Case. Unpublished manuscript. H.B.S.

PART FOUR

Understanding Behaviour in Groups

Uttara Mills (C)

Group Work on a Marketing Project

Exercise : Group Task

CASES

Uttara Mills (C)

OFFICER'S MEETING

THE EXECUTIVES of the Uttara Mills, Kanpur, met every Wednesday evening to discuss common problems. The meetings were held in the sales manager's office and convened by the head of the dyeing department, Mr. Tandon, who also kept the minutes of each meeting. The minutes were latter presented to the managing agent, Pratapsing, or Sethji as he was known to the officers. The convenor was nominted by the managing agent, who had chosen Mr. Tandon because he came into frequent contact with other departments in supervising the central laboratory. Problems of production, quality, raw materials, market trends, performance of various sorts sold by the mill or other leading mills, and administrative decisions affecting the working of the departments were discussed at these meetings. The heads of the departments of spinning, weaving, dyeing, bleaching and finishing, marketing and engineering, and the deputy secretary of the company attended the meeting held on May 8, 1965. The office of the marketing head, Mr. Mehra, served as the meeting place because "it was quieter than the offices of the other executives and was also air-conditioned." The executives sat around Mr. Mehra's table. The meeting began with a discussion of a memo issued by the office.

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Opening the discussion Mr. Tandon said :

With your permission, gentlemen, I may start this meeting. The first item for discussion today is this new order from the office about issuing passes for visitors who want to visit the departments. The new order says that visitors must be received only in the office and only those for whom it is absolutely essential may come to the department.

MR. GUPTA (Head, Engg. Dept.): This order is very troublesome. Yesterday four visitors had called on me, and I had to come to the office four times in the morning.

MR. RAM (Head, Weaving Dept.): I should like to know why the administration issued such an order at all.

MR. TANDON : It is very inconvenient for us to come all the way to the office whenever someone comes to see us. Yesterday some foreigners had come to see me but the sentry at the gate stopped them and made them sit on the same bench with him. Is this the way we should treat foreigners ? I don't understand the reason behind issuing such a notice at all.

MR. KHANNA (Dy. Secretary) : The notice has been issued by me but through the office. I have worded it as Sethji (the managing agent) told me. The idea behind the notice is his and not mine. I have only had it drafted and circulated. So if you have any quarrel with the rule, it is really a quarrel with Sethji.

MR. TANDON : But what about the foreigners ? Do you think it is right for us to make them sit with the sentries ?

MR. KHANNA : Now, that is the operational part of the rule. Maybe the Gurkha does not know how to deal with different persons and has been impolite. We can investigate the matter and set it right. We can ask him to request visitors to sit in the cabin upstairs and wait till you come. You know we are going to make three or four special cabins so that different officers can meet visitors at the same time separately.

MR. MEHRA (Sales Prom. Head) : This still does not solve the problem. So far the heads of departments were allowed to have visitors meet them in their departments. They were treated as responsible people, while now you say that visitors should not be allowed to come to the departments. It looks as if you suspect that we might give away the processes. It is clear that you do not trust us.

MR. KHANNA : That is not true. Frankly, I also do not exactly know why this has been done. Maybe, Sethji saw some outsiders in the departments and did not like it.

MR. TANDON : You must issue permanent passes to persons whom we recommend so that they can straightaway come to us. For instance, take companies like Texmaco or Sun & Engineering. Their men have to come regularly to see us and most of them discuss the plants and machinery. We cannot do this in the office. Such people must have permanent passes.

MR. KHANNA : But supposing you deal with a hundred companies and you ask for permanent passes for each of them, and if all the heads ask for passes like that, what is the use of having restrictions ?

MR. RAM : This is meant only for some companies and not all and you should trust our discretion about it. We won't recommend anyone and everyone for passes.

MR. TANDON : Mehra, what do you feel about this ? Should permanent passes be issued ?

MR. MEHRA : Yes. But the whole business is very troublesome.

MR. GUPTA : Didn't management know before issuing the orders that this is going to be troublesome ?

MR. TANDON : So, shall I write that we all feel that permanent passes should be issued to persons recommended by the department heads ?

MR. KHANNA : Why do you want to make such a recommendation ? Let us separate the principle from the operational part and discuss how to implement it. We can instruct the Gurkha to request the visitors to wait and ask Dubeji (the manager) whether the visitor should be allowed to go inside or not.

MR. GUPTA : But Dubeji is not always present in the office.

MR. KHANNA : If he is at home we can telephone him and ask.

MR. TANDON : And what if he is sitting in *Seva** ? (Everyone laughs). You know he takes two hours to get up from his *Seva*. Let us write that permanent passes should be given and send this to the management and see what is done about it.

MR. KHANNA : We should disturb Dubeji if he wants to be disturbed from the *Seva*. I don't think any purpose would be served by writing in the minutes that passes should be given. If you feel so strongly about it, why don't you call Sethji to our meeting and discuss the matter with him ? Or go personally and let him know your views ?

MR. TANDON : Why should I go alone to him ?

MR. KHANNA : In that case we may send a deputation of two or three persons to meet him.

MR. TANDON : The best course is to write it in the minutes so that when he reads it he will take action.

MR. KHANNA : But he may be busy when he reads the minutes or he may just read it and sign without taking any action on it, and your purpose will not be served. It will be more useful to meet him personally and explain your difficulties.

**Seva* is an elaborate ritual that is performed daily by some devout Hindus.

MR. TANDON : Shamlalji (Spg. Master), what is your feeling about it?

MR. SHAMLALJI : Passes should be given. It is not possible to leave the department every time someone comes to see us.

MR. RAM : When people come to the departments, we can go on giving instructions to the subordinates or answering their questions even while talking with the visitors.

MR. KHANNA : Does that mean that you have to be constantly present to keep your department going ? Will it not work if you are away for a few hours ?

MR. TANDON : You don't think that during day-time we just sit in our cabins ? We have to give decisions once every few minutes so that if a visitor comes to the department we can call the assistants or they can come to us for decisions while we are talking. Subramaniam (Head of Processing Department), what do you feel about this ?

MR. SUBRAMANIAM : I think it will be convenient if passes are given.

MR. GUPTA : If the management wants us to go to the office and waste our time, let us do it and they will realise their mistake.

MR. KHANNA : You should meet Sethji about this and discuss it personally with him.

MR. TANDON : You are telling us that we should meet people in a cabin in the office, but supposing representatives from four companies come at the same time, would you like us to talk with them simultaneously ? How can you expect the salesmen of one company to point out the defects of the products of another company and tell the advantages and specialities of his own products when the other company's representative is sitting there ?

MR. KHANNA : But how often would representatives of different companies come together in a year ?

MR. MEHRA : Tandon, I don't think there is any point in discussing this further as we are not getting anywhere. Why don't you write on the minutes that we feel that permanent passes should be issued and go on to the next item ?

MR. TANDON : Okay, now, shall we move to the next item on the agenda ?

MR. KHANNA : I have another item to present. The company has always accepted Operations Research as a means for improving the management in a scientific way, and that is why we have Mr. Rangan, the Operations Research Specialist, working in our mill. If you remember, we were all deputed to the course for "Operations Research Appreciation" and our mill has made special arrangements with the Textile Research Association to give us the services of Mr. Rangan. In the course of his work Mr. Rangan has to go to various departments and ask several questions to get data about each department. Our duty is to see that he is satisfied, but his experience in one of the departments has been none too happy. For example, he asked a question and was told that it was a silly one. When he pursued it further, he was told that such questions were not expected from a person of his calibre. Now it must be stated that each of the departmental heads may be an expert in his field, but Mr. Rangan is a statistician by training and is not expected to know all the details of the textile industry. Hence, he has to ask questions which may appear elementary but are necessary for him to understand problems and to give useful suggestions.

MR. GUPTA : I can't believe that such a thing could have happened. The heads of the departments are all responsible people and nobody would like to say such a thing to Rangan.

MR. TANDON : I too can't think how such a thing could have happened. How can a head of a department say such a thing ?

MR. SHAMLALJI : If what Mr. Rangan says is true, it is quite bad, but I too doubt whether this could have happened. I think Mr. Rangan should tell us who is the person involved and let us have all the facts.

MR. KHANNA : It is not fair to ask Mr. Rangan to name the head and it will serve no purpose. This thing has happened and Mr. Rangan has told us that it has. I have brought it before the officers' meeting so that similar incidents should not occur in future.

MR. SHAMLALJI : We should clear up the matter so that nobody goes away with bad feelings, and I request Mr. Rangan to tell us who was the head who spoke to him so impolitely. I am even prepared to say that if this is true, the officer concerned should apologise to Mr. Rangan. We can assure him that such a thing will never happen again.

MR. GUPTA : Yes, Mr. Rangan, why don't you give us the name of the person ?

MR. RAM : What is the use of getting the name ? I don't think it will serve any purpose except creating bad feelings.

MR. TANDON : Mr. Rangan, what have you to say in the matter ?

MR. KHANNA : Mr. Rangan has told me about this incident because he thought that I would be able to help him in this matter. I don't think we should press Mr. Rangan.

MR. RANGAN : I have little to say about it. I am a new man in the industry. My training is not in the field of textiles. When I came here, I hoped not only to be able to make improvements in the working of the mill, but also to learn something useful about textiles. Naturally, I have to ask questions about the various processes, machines, etc., to get an idea of how things are done. You must understand the feelings of a junior person when he goes to someone senior to ask about something and the senior person snubs him. I felt vary bad and rather useless. I told Mr. Khanna about the incident, but I don't want to hurt anyone's feelings or to embarrass anyone. I just want to say that my feelings have been hurt and I do hope that such things won't happen again in my work.

MR. TANDON : I think that the best course in this matter is to request Mr. Rangan to meet the head of the department concerned about this incident and get the matter cleared with him; then we can pass on to the next item on the agenda.

MR. KHANNA : This is not proper. How can Mr. Rangan go to the head of the department who has already insulted him and discuss the same incident with him again ?

MR. MEHRA : Then what can we do in the matter ?

MR. KHANNA : I should like this matter to be included in the minutes of the meeting and the entire discussion to be included as part of the minutes.

MR. TANDON : I do not see why we should include the whole discussion in the minutes of the meeting because the minutes go to Sethji and it will be bad for the officers concerned. As an alternative I suggest that we just pass a resolution that all the officers and heads of the departments of the mill appreciate Mr. Rangan's work and co-operate with him.

MR. MEHRA : With such a resolution, somebody is sure to ask why it was needed and the whole thing would come up for a discussion. That is not a wise course.

MR. RAM: Why don't we accept Mr. Tandon's suggestion and request Mr. Rangan to clear the matter with the head of the department concerned ?

MR. KHANNA : Even if you do that, you may mention the incident and say that this is the resolution that we have passed, and include the incident and the resolution in the minutes of the meeting.

MR. SHAMLALJI : I still suggest that we should end the matter here and now. Let Mr. Rangan tell us the name of the head concerned and let us all discuss the facts of the case.

MR. GUPTA : Yes, Mr. Rangan, come out with the name.

MR. RAM : Yes, let us have the facts and end this matter.

MR. MEHRA : All right, let us have the name.

MR. KHANNA : This is not fair. You are pressing Mr. Rangan to do something which is not justifiable under the circumstances.

MR. TANDON : In that case let Mr. Rangan discuss it privately with the person concerned and we can drop the matter here. Mr. Rangan, do you feel this is all right ?

MR. RANGAN : All right, you can drop the matter.

MR. MEHRA : So let us talk about that new sort.

MR. KHANNA : I do not see how you can drop the matter when I have already raised it and when it has been discussed. You must include it in the minutes.

MR. TANDON : As the convener, I have the power to decide what should be included in the minutes and what should not be included in the minutes, and I request you to leave to me the use of those powers.

MR. KHANNA : In that case let us take a vote on this and see what the various officers think should be done. I say that this should be included in the minutes. If the officers think that this should not be included, they can vote against the inclusion.

MR. TANDON : Those who are against inclusion of this item in the minutes please raise your hands.

MR. TANDON : Since everyone except Mr. Khanna has raised his hand, we can drop the matter here. Now any other point ?

MR. GUPTA : I suggest that we make a note of the water problem that is likely to rise in the future and send it to Sethji so that later no one can say Gupta was sleeping and never did anything.

MR. MEHRA : In how many months, do you think, Gupta, the problem will become acute ?

MR. GUPTA : May be this month, may be one year, may be five years.

MR. RAM : Mr. Gupta has started thinking in terms of five year plans now. I therefore suggest that we think about things of present moment. Gupta, our water coolers are not working and the cooling fans are also out of order. You have been given so many days, but they have not been repaired. Our workers are bothering me every minute about it.

MR. GUPTA : The mechanic had come today, but he didn't have proper tools to open them. So he said he would come some other day. Now what can I do ? We are trying our best to help you.

MR. KHANNA : I think we have gone on to another matter before we have finished the earlier discussion. I say that if a thing has been discussed in the meeting, it must be included in the minutes and that a majority vote cannot exclude it.

MR. TANDON : If you insist on this, Mr. Khanna, I say that I will not permit a discussion of this item any further and exclude it from the agenda.

MR. KHANNA : How can you do that when a member wants to bring up something in the meeting for discussion ? You cannot prevent him from getting it discussed. Otherwise what is the use of having these meetings ?

MR. TANDON : In meetings in various companies and associations, the chairman has a right to exclude anything from discussion. I have a similar right and I exclude it from discussion as well as from the minutes. I consider the matter as closed; please do not raise it again.

MR. RAM : Mr. Gupta, as long as you do not repair the water cooler, the workers have to go all the way to the other end to drink water and a lot of time is wasted. I am surprised you cannot get such a thing repaired in a short time.

MR. GUPTA : I do not purposely delay the repairs and I do not enjoy hearing these things from you. But I am helpless in the matter.

MR. RAM : You have to listen to only one person whereas I have to listen to a thousand; they come into my cabin and bother me, and they are justified in their complaint.

MR. KHANNA : If you all decide to exclude the point raised by me from the minutes and do not discuss it further, I have nothing more to say but I am satisfied that my purpose of focusing your attention on this point has been served.

After the meeting Mr. Khanna told the case writer : "I told you earlier that I hardly ever attend these meetings because I do not like the spirit of the officers in the meetings. I am sure you must have seen that my stand is justified. On the personal level, we have no hard feelings against each other, yet I feel that we are often on opposite sides. I have observed that usually Mr. Gupta and I are on the receiving end."

Group Work on a Marketing Project

PART A

ONE OF THE requirements at the Indian Institute of Management, Ahmedabad, is for students to work on a field project. The Marketing Faculty had announced several marketing projects which could be undertaken by a group of students. A pre-requisite announced for selecting marketing projects was that students should have taken Marketing Research course in the first term. This case deals with how six students got together for a study of "Consumer Attitudes towards Scooter Buying", and how they went about their task. The following material is based on a report by Kumar, a member of the group.

THE GROUP

Vijay and Kumar had decided in the first term that they would take up any Marketing Project in the second term, but together. Gopal

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and Sudhir were also looking forward to working together on any marketing project. Pratap had three choices open to him. An important criteria for him in selecting a project to work on was the membership of a group. Since he knew the above mentioned four members fairly well he decided to join this group. A sixth member was wanted for the project.

One evening Sudhir asked Kishan why not join the Scooter Project. Kishan told him that the prerequisite did not make him eligible for the project. Sudhir said, "Why don't you meet the Instructor. Tell him about your summer assignment(forecasting scooter sales), and I am sure he will permit you to take the project." Kishan met the Instructor and on the basis of his summer experience was allowed to be the sixth member of the group.

The background and some relevant details of the six members are given in Table I.

When the group met for the first time, the Instructor asked for a co-ordinator's name. Kumar said, "Sir, we will tell you tomorrow." Sudhir said, "Kishan, Sir."

SOME INCIDENTS IN THE LIFE OF THE GROUP

Incident 1. In order that the survey could be carried out, it was necessary to have addresses of persons who had purchased a scooter within the last six months. Such a list could only be obtained from either the dealers or the Regional Transport Office. In the third meeting the group members decided that Kishan and Sudhir should contact the dealers, only four of them, and obtain the necessary addresses from them.

Sudhir informed the group the next day that the dealers were most un-cooperative and refused to give addresses.

KUMAR : How many dealers did you meet ? I mean, did you go to all the four of them ?

KISHAN : No, I met only two of them, and as they declined to help me, I saw no reason for trying the other two.

PRATAP : But, you still could have tried. Such troubles are going to come, but one has to keep trying.

KISHAN : All right, then why didn't you go in the first place. I lost my patience. Do you know what the dealers told me. They suggested that I should contact the R.T.O. people for they would be having a consolidated list.

KUMAR : Do you remember what we had decided in the meeting. Come on now, at least you as the leader should remember what had been decided. To refresh your memory I will repeat, the group will make a two-fold attack—dealers and R.T.O.

The following day Pratap and Kumar went to the R.T.O. and learnt that a letter from the Institute was necessary to have access to the addresses. In the afternoon Vijay accompanied Kumar and went to to the R.T.O. They were promised that within a week the Regional Transport authorities would send instructions to the persons concerned so that the group members are allowed to copy the addresses.

Vijay then suggested to Kumar, "Why don't we try the dealers in the meantime." The first dealer they visited was the same one who had been contacted by Kishan the previous day. Surprisingly, he was very co-operative and agreed to provide the addresses.

This was the beginning of the trouble. Kishan, instead of commending Kumar and Vijay said—"What have you achieved. Just 30 addresses, while we need at least 300."

Kumar maintained that the ice had broken and who was Kishan to say anything. He had got nothing done. The discussion became a bit heated and finally Kumar let out his steam. "You call yourself a leader. But you are good for nothing. You must have talked in your high-pitched tone and that dealer must have got irritated."

Incident 2. The proposal for the project had to be submitted. It was the co-ordinator's duty to call the meeting. But when Kishan did not arrange one, Kumar took the initiative and on the suggestion of Vijay and Pratap invited the other three group members over to his room. A vague proposal was drafted that night.

Vijay and Kumar were handed over the responsibility of drafting this neatly, while Sudhir was asked to draw out the questionnaire on the basis of what had been discussed. Next day, Sudhir handed in the questionnaire.

KUMAR : Do you call this a questionnaire? Is this what you were taught in the first term ?

SUDHIR : Then why don't you make it yourself. I sat up till three in the morning.

VIJAY : There is nothing to get hot about. A few modifications are wanted and these I shall do. You (to Sudhir) have given us a lead. (Sudhir exits).

KUMAR (to Vijay) : So you also support Sudhir. Tell me frankly, do you call that a questionnaire ? The right place for it is the waste paper basket.

VIJAY : Calm down. You get hot very soon. Is this the way to talk ? I thought you had improved after that cool talk with the dealer. But I do not know why with some people you behave so differently and with others differently. I agree that the questionnaire is 'bull-

TABLE I

BACKGROUND OF MEMBERS

Name	*Age*	*Work experience*	*Qualifications and where studied*	*Summer project*	*Region*	*Languages spoken other than English*	*Living first year in IIMA*	*Living second year in IIMA*	*Marital status*	*Social Life*	*Leader for group activities before*	*Conducted marketing survey before*
Kumar	24	Nil	B. Tech. I I T Kanpur	Mktg. Res.	U. P.	Hindi	H.No.317	D-3 First Floor	S	Participate in all activities	Yes	One
Vijay	23	Nil	B. Tech. I I T Bombay	O&M	Mysore	Hindi Kannada	H.No.317	,,	S	,,	No	Nil
Pratap	24	1 yr.	B.E. Pilani	Mktg.	Punjab	Hindi Punjabi	H.No.402	D-2 First Floor	S	,,	Yes	Two
Kishan	23	Nil	B.E. Deptt. of Chem. Engg. Bombay	,,	Gujrat	Hindi Gujarati	H.No.310	D-3 Second Floor	S	Nil	Yes	One
Sudhir	23	Nil	B.E. Mysore Univ.	,,	Mysore	Kannada	H.No.310	D-2 Third Floor	S	Nil	No	Nil
Gopal	23	Nil	B. Tech. Madras Univ.	,,	Madras	Tamil	H.No.422	D-2 Third Floor	M	Nil	No	One

shit' but then you can't say it. That fellow has put in labour, and what do you get by hurting somebody's feelings.

KUMAR : But you know I never meant hurting him. I like to be very frank.

Finally, Vijay and Kumar drafted the questionnaire. They were not satisfied with it as many modifications from the original were not allowed by the group members. When the questionnaire was being thrashed with the Instructor, the latter pointed out certain flaws. Sudhir and Kishan refused to accept the mistakes pointed out by the Instructor and kept on arguing. Vijay had pointed out these very points earlier.

Incident 3. The proposal and the questionnaire had to be re-written. Kishan approached Kumar and said, "Kumar, you and Vijay seem to be on the same wave-length as the Instructor. Why don't you finish this work." Vijay said, "But no, this is group work and let us all sit down this night. You can call everyone to my room."

A questionnaire was made and the next day Vijay and Kumar pre-tested it while the drafting of the proposal was given to Sudhir. Certain modifications were made but the proposal never saw the light of the day.

SUDHIR : I was very busy with SCAN.[1]

VIJAY : But all of us have taken it. And you know that the last day for submitting the proposal is four days from now.

SUDHIR : Why don't you finish this off. I cannot find time. I don't know how you manage to find so much time. Come on, you and Kumar are WEC[2] champs.

Finally, Vijay and Kumar agreed to writing out the project proposal also.

Incident 4. Pratap seemed to be hesitating going to the city to collect addresses from the R.T.O. One day Kishan came to Kumar and said : Kumar, Why don't you ask Pratap to come along with me after the EABP class.

KUMAR : Why don't you ask him yourself. After all I am not his secretary and remember you are the group leader. He ought to listen to you.

KISHAN : But I have asked him, and he does not listen to me.

VIJAY (to Kumar)—After all you are so pally with him. So you better ask him to go with Kishan. He will certainly listen to you.

[1] Seminar on Computer Aided Analysis.

[2] Written Executive Communication.

RESPONSES REGARDING ROLES AND INTERPERSONAL COMPETENCE OF MEMBERS

At the end of the project a questionnaire was circulated to members asking their opinion about member's contribution to the task and about their inter-personal relations. Only four members filled the questionnaire, namely, Pratap, Vijay, Kumar and Kishan.

Table II gives the responses of the four members concerning their group functioning.

In discussing the responses in Table II, Kumar made the following points:

1. There were at least three persons who had exceptionally good ideas, viz., Vijay, Pratap and Kumar.
2. The above three persons also seemed to guide the discussion effectively.
3. However two of them participated most. The leader, Kishan, was also one of the persons who seemed to have at least participated sufficiently.
4. Only one member, Kumar, stood out as a leader during the discussions.
5. Friendliness and congeniality were added only by Vijay and Pratap. The leader (Kumar) seems to be rude and harsh. Not even the official leader Kishan was looked upon as a person who added congeniality.
6. Vijay is the only person who seems to have gained the support of all as everyone would like to work with him.

TABLE II

RESPONSES REGARDING ROLES AND INTER-PERSONAL COMPETENCE OF MEMBERS

	Vijay	*Pratap*	*Kishan*	*Sudhir*	*Kumar*	*Gopal*
1. Good ideas, clear reasoning ability	4	4	1	1	4	..
2. Guided the discussion	3	3	2	2	3	..
3. Participated most in the discussion	2	3	3	2	3	..
4. Leaders	1	2	1	1	3	..
5. Added congeniality and friendliness	3	3	..	1	..	..
6. Persons who one would enjoy working with	3	2	..	2	2	1
7. How satisfied with the group discussion			Average		4	
8. How satisfied with the operation of the group			Average		4	

PART B

The Instructor of the course "Management of Change" asked Kumar what grade did this group get in their "Scooter Report". Kumar said, "We got 'C'. We were very angry and unhappy about this grade, for we had put in twice as much effort as the other marketing group and they received 'B+'."

INSTRUCTOR : Did the other group have as many inter-personal problems as your group ?

KUMAR : Perhaps no, they seemed to be getting along well.

INSTRUCTOR : What was the average grade of the members in your group in First Year Marketing Courses ?

KUMAR : Most of us were good 'B' students.

INSTRUCTOR : I wonder if you people had gone through the 'process meeting' early in the game, whether that would have improved the functioning of the group and consequently your grade.

KUMAR : We did spend 2 to 3 hours in meetings when we could have finished our work in half an hour or so. In the later part it was really Vijay and myself doing the major work of the report. The other group who got a 'B+' in fact spent half the time on the project to what we did.

The next term, which was the final term, Kumar came to meet the Instructor. He said he was dejected and depressed because he still did not have a firm offer of a job. He had been interviewed by 2 or 3 organisations, but somehow in their final selection he was left out. According to Kumar the final selection did not seem to be related to the grades of the student.

Exercise : Group Task

You are the heads of certain departments of a large British trading company which has wide interests in the Colonies. In one Crown Colony, mainly inhabited by a native population, it has been proposed by the Board of Directors in consultation with yourselves that an up-to-date brewery should be established.

Up to the present time beer and spirits have been imported into the Colony by numerous trading concerns including your own; recently, however, your foreign competitors have been selling imported beer at prices with which it is becoming increasingly difficult to compete.

An objection to estabishing the brewery has been raised by one shareholder, the secretary of a temperance society, on the grounds that the increased facilities for drinking which would result would lead to the debasement of the natives and bring misery, crime and moral degradation in its train. This objection has been supported by other shareholders (including an important one) who have stressed that such consequences would discredit the Company's name and thereby endanger its trading prospects. The total shareholding of the group of objectors, while not being great, makes them an important minority.

In view of this objection you have been asked to advise the directors on the action they should take with regard to the brewery and the shareholders.

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The papers in this file are about the problem. You have 10 minutes to read them and will then be expected to discuss the problem together and settle the main lines of your report to the Board. You will have half an hour for discussion.

SUMMARY OF REPORT FROM GENERAL MANAGER OF THE COMPANY IN THE COLONY

Market Report

The Company is at present importing British beer into the colony, which must be sold at 2/6 a bottle to make an adequate profit. Competitors are able to import foreign beer which can be sold at a reasonable profit for 2/1 a bottle. The company's London office has not been able to get supplies of such beer.

It is estimated that a modern brewery in the Company can produce beer of a comparable quality and undersell foreign beer by 2d a bottle.

Over the past twelve months the sale of beer in the Colony has increased 25% (as shown in the revenue figures of the Custom and Excise Department). The Company's sales have fallen by 33 1/3% during the same twelve months. The sale of beer contributes at present a small but important amount in the Company's turnover, but the increase in the competitors' sale of beer is assisting their entry into other commodity markets.

Distribution

The distribution of beer is linked to a greater or lesser extent with that of the other goods handled by the Company. Because of the fall in beer trade the proportion of distribution costs to total cost have shown a tendency to rise over the past twelve months. Balancing the fall in revenue by an increase in the sale of alternative merchandise is made difficult by competition.

Raw Materials Supply

There will be no difficulty in obtaining adequate supplies of hops from Great Britain. At the same time, although recent agricultural experiments undertaken by Government agencies in the Colony in the large-scale cultivation of cereals have not been successful, small-scale experiments carried out on our own farms lead us to believe that hops could be grown locally and in time supply all the needs of the brewery.

The general water supply in the Colony is not suitable for manufacture of good beer but we have an option on a site which would provide adequate and suitable water. The option was secured with a view to erecting a factory, where produce was unspecified at the time it was secured.

Summary of Correspondence with the Colonial Secretary

........Her Majesty's Government would raise no objections. . . .

Extract from Statistical Section of Annual Report of Chief of Police

CRIME Classification	*Prosecutions*	*Convictions*	*Corresponding figures for last year*	
			Prosecution	*Convictions*
....				
....				
Drunk and disorderly	3,465	2,862	3,342	2,678
....				
Robbery with violence	756	641	779	625
Housebreaking	894	822	1,072	907
....				
Sex offences	243	105	229	121
....				
Murder	63	52	42	27
....				
....				

Cutting from a Leading Article in the "Courier"

(Local daily paper with a circulation of 45,000)

BRITISH INTERFERENCE WITH LOCAL ENTEPRISE

. . . . How much longer are we going to tolerate this interference with the affairs of the Colony ? An enterprise of benefit to the community was planned, a decision was made and has now been postponed. Why should a minority in London dictate what we can have and what we can't have ?. . . . The remedy for the minority who cannot obey the laws of the land is to punish them, not to deny to the majority the privileges and benefits which increased employment and modern working conditions can bring. . . .

CUTTING FROM THE "ARGUS"

(Local weekly paper with a circulation of 5,000)

. . . . The controversy which has been stirred up by the proposal to establish a brewery in. . . . raises difficult problems, economic, ethical and religious. There can be little doubt that the history of progress of industrialization is a story in which the benefits of civilization have always been accompanied by disadvantages. We do not believe that drink is necessarily harmful but we feel it our duty to point to the record of increased drunkenness in the past year. . . . . .

The evidence is overwhelmingly in favour of postponing what, in the distant future, may prove a welcome and beneficial addition to the commerce and enterprise of our community. Unbalanced progress can only lead to social and economic difficulties. While so many of our other newly introduced industries are in such a backward state, it does not seem that so important a site should be devoted to the establishment of brewery without further consideration of its moral and political effects.

Undoubtedly we must accept the ideas that. . . . .

COPY OF A LETTER FROM THE BISHOP OF. . . . .

(President of the. . . . Missionary Society to the Chairman of the Company)

My dear. . . . .

My Council and I have always appreciated the generous contributions you have made to our funds and the high standard you have set for your Company and its officers in all its dealings with the native population of the territories in which you work.

As you know, our work in. . . has not been easy but, at least, after 40 years of difficult endeavour we feel that we are making some progress. For this reason we believe we must do everything in our power to avoid any step which may affect our work adversely. I am sure you will agree that the natives of. . . have not yet attained quite that standard of education which allows them to judge always what is in their best interests, and that although we all hope that they may soon be in a position to determine their own future, they still need understanding guidance.

In veiw of our long and very co-operative relationship I venture to ask if some of my colleagues and I might see you to discuss the latest reports from the Colony about your new venture.

With all best wishes,

NOTE TO THE INSTRUCTOR

This exercise is most effective when it is spread over three class sessions. The class should be divided into groups of 6-8 members with two observers attached to each group. The role of the observers is to keep a record of the group processes. This record can be kept in many standard formats which have been recently developed. Bales' Interaction-Process Analysis has been found to be especially useful for this purpose.* In the second session, each group hears and discusses the observed report on the group-processes which went on in the preceding session and prepares a report evaluating its working. In the third session the instructor should take illustrations from the behaviour of the groups and their members, to elaborate on such group processes, as leadership and interaction patterns, sub-groups, group phases, etc.

*R. F. Bales, *Interaction Process Analysis : A Method for the Study of Small Groups*, Mass : Addison-Wesley Publishing Co., 1951.

David H. Jenkins, "Feedback and Group Self-Evaluation", *The Journal of Social Issues* Vol. 4, No. 2, SPRING 1948, pp. 50-60.

"Some Dimensions of Group Growth", *Dynamics of Group Life, National Training Laboratories Trainers' Workbook*, No. 7, National Training Laboratories, Washington, D. C., 1958, pp. 97-98.

PART FIVE

Understanding Intergroup Behaviour

WALTON AND DUTTON

The Management of Interdepartmental Conflict—A Model and Review

McGREGOR AND KNICKERBOCKER

Union-Management Cooperation : A Psychological Analysis

READINGS

RICHARD E. WALTON AND
JOHN M. DUTTON

The Management of Interdepartmental Conflict: A Model and Review

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A general model of interdepartmental conflict and its management is presented, together with a review of the relevant literature. The model integrates the contextual determinants of organizational conflict emphasized by sociologists and the dynamics of conflictful relationships studied by social psychologists. The general feedback linkage in the model is provided by the adaptive and maladaptive reactions of higher executives to conflict and the consequences of conflict between units. Each of these several aspects of the model has implications for a strategy of modifying interdepartmental patterns.

HORIZONTAL interactions are seldom shown on the organizational chart, but transactions along this dimension are often at least as important as vertical interactions (Simpson, 1959; Landsberger, 1961; Burns and Stalker, 1961). This paper presents a general model of interdepartmental conflict and its management, together with a review of the relevant literature.[1] The model includes five sets of related variables : antecedents to conflict, attributes of the lateral relationship, management of the interface, consequences of the relationship, and response of higher executives. Figure 1 shows the general relationship among these sets of variables.

The general model is postulated as applicable to all lateral relations between any two organizational units (departments, divisions, sections,

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[1] This research was supported by a grant from the McKinsey Foundation for Management Research, Inc.

and so on) that engage in any type of transaction, including joint decision making, exchanging information, providing expertise or advice, and auditing or inspecting.

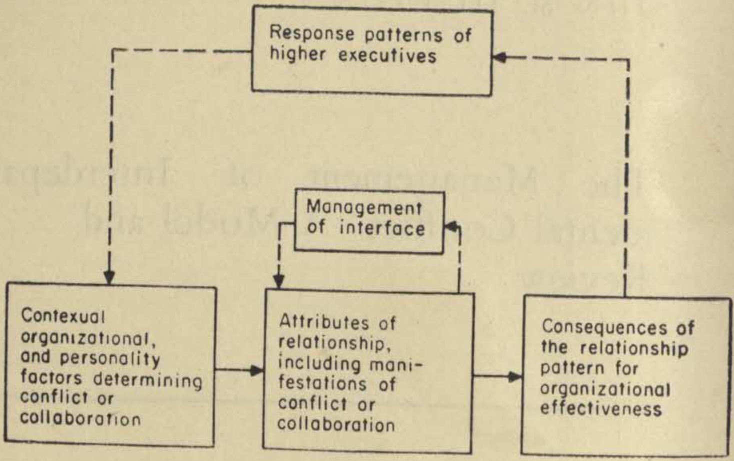
Response patterns of higher executives
Management of interface
Contexual organizational, and personality factors determining conflict or collaboration
Attributes of relationship, including manifestations of conflict or collaboration
Consequences of the relationship pattern for organizational effectiveness

Fig. 1 : General Models of Interunit Conflict

ANTECEDENTS TO INTERUNIT CONFLICT AND COLLABORATION

Manifest conflict results largely from factors which originate outside the particular lateral relationship under consideration or which antedate the relationship. Hypotheses and models that use external factors to predict lateral relations have been advanced by March and Simon (1958), Thompson (1961), Caplow (1964), Lawrence and Lorsch (1967a, b) and Pondy (1967). The present model describes nine major types of antecedents: mutual dependence, asymmetries, rewards, organizational differentiation, role dissatisfaction, ambiguities, common resources, communication obstacles, and personal skills and traits.

MUTUAL TASK DEPENDENCE

Mutual task dependence is the key variable in the relevance of the interunit conflict model in general and the impact of the postulated conflict antecedents in particular. Task dependence is the extent to which two units depend upon each other for assistance, information, compliance, or other coordinative acts in the performance of their respective tasks. It is assumed here that dependence is mutual and can range from low to high. Asymmetry in the interdependence is treated later.

According to Miller (1959), the more performance of one unit depends on the performance of all other units, the more likely is the system to perform without external control. Other studies, however, Dutton and Walton (1966) for example, indicate that task interdependence not only provides an incentive for collaboration, but also presents an occasion for conflict and the means for bargaining over interdepartmental issues. A related factor, task overload, has similarly mixed potential for conflict and collaboration. Overload conditions may intensify the problem of scarce resources and lead to bargaining; may increase tension, frustration, and aggression; and may decrease the time available for the social interactions that would enable the units to contain their conflict. On the other hand, overload may place a premium on mutual assistance. The net directional effects of high task interdependence and overload are therefore uncertain.

Other implications of the extent of mutual task dependence are more predictable. High task interdependence and overload tend to heighten the intensity of either interunit antagonisms or friendliness, increase the magnitude of the consequences of unit conflict for organizational performance, and contribute to the difficulty of changing an on going pattern.

TASK-RELATED ASYMMETRIES

Symmetrical interdependence and symmetrical patterns of initiation between units promote collaboration; asymmetrical interdependence leads to conflict. For example, in a study by Dalton (1959), a staff group resented the asymmetries in their relationship with line groups. The staff group had to understand the problems of the line groups, had to get along with them, promote their ideas, and justify their existence; but none of these relations were reciprocal requirements imposed on the line groups. Strauss (1968) reported that asymmetrical high dependence of purchasing agents on another group led them to make more attempts to influence the terms of requisitions they received and thereby force interaction to flow both ways.

The adverse effects of asymmetrical conditions are sometimes related to the fact that one unit has little incentive to coordinate. The more dependent unit may try to increase the incentive of the more independent unit to co-operate by interfering with their task performance. The assumption is that once the independent unit is made aware of their need for the cooperation of the dependent unit (i.e., to desist from interfering acts), they will behave more co-operatively (supply the assistance necessary). This tactic may indeed achieve its purpose, and the conflict-interfering acts may cease; but frequently interference elicits a retaliatory response.

Conflict is also produced by differences in the way units are ranked along various dimensions of organizational status, namely direction of initiation of action, prestige, power, and knowledge. Seiler (1963) studied in an organization in which it was generally agreed that research had more prestige than engineering and engineering had more prestige than production. When the sequential pattern of initiation and influence followed this status ordering, it was accepted. However, where a lower-status industrial engineering group needed to direct the higher-status research group to carry out routine tests, the result was a breakdown in relationships between the departments.

Inconsistency between the distribution of knowledge among departments and the lateral influence patterns are also a source of conflict. Lawrence and Lorsch (1967a) advanced the idea that the more the influence of each unit is consistent with key competitive factors, the more effectively will interunit issues will be resolved. They noted that in container firms, customer delivery and product quality were crucial for competitive success; therefore, sales and producton were required to have the most influence in the resolution of interunit conflict. By contrast, in the food industry, where market expertise and food science were essential, sales and research were required to be the more influential. Landsberger (1961) also found that the locus of power among three plants in the same industry was affected by their different market positions.

Zald (1962) in a study of correctional institutions offered a power-balance proposition about the effect of relative power: assuming task interdependence and divergent values among three units (teachers, cottage parents, and social service workers), conflict is most likely to occur between units that are unable to control the situation and those perceived as being in control. He found that the patterns of conflict among these three units were generally consistent with predictions based on this power-balance hypothesis.

PERFORMANCE CRITERIA AND REWARDS

Interunit conflict results when each of the interdependent departments has responsibility for only one side of a dilemma embedded in organizational tasks. Dutton and Walton (1966) noted that the preference of production units for long, economical runs conflicted with the preference of sales units for quick delivery to good customers. Dalton

(1959) observed that staff units valued change, because that was one way they proved their worth; whereas line units valued stability, because change reflected unfavourably upon them or inconvenienced them. Also, staff units were strongly committed to preserving the integrity of control and rule systems, whereas line personnel believed they could be more effective by flexible reinterpretation of control and incentive schemes, and by ignoring many discipline and safety violations. A study by Strauss (1962) showed that engineers preferred to order brand items, whereas purchasing agents sought specifications suitable for several vendors. Similar instances abound. Landsberger (1961) postulated several basic dilemmas which probably underlie many interdepartmental differences: flexibility versus stability; criteria for short-run versus long-run performance; emphasis on measurable results versus attention to intangible results; maximizing organizational goals versus responding to other societal needs.

Although the dilemmas may be inherent in the total task, the reward system designed by management can serve either to sharpen or to blunt their divisive effective: the more the evaluation and rewards of higher management emphasize the separate performance of each department rather than their combined performance, the more the conflict.

Close, one-to-one supervisory styles have generally been assumed to promote more conflict among peers than general supervision in which the superior also deals with subordinates as a group (Likert 1961). One might speculate that group supervisory patterns are taken to indicate emphasis on group rather than individual performance criteria; and that group patterns allow the supervisor to observe the process and to reward cooperative acts.

ORGANIZATIONAL DIFFERENTIATION

Litwak (1961) postulated that uniform tasks require a bureaucratic type of organization, characterized by impersonality of relations, prior specification of job authority, emphasis on hierarchical authority, separation of policy and administration, and emphasis on general rules and specialization; whereas nonuniform tasks require a human-relations organization with the contrasting characteristics. In contemporary society, most large-scale organizations have to deal with both uniform and nonuniform tasks, and must combine these contradictory forms of social relations into a professional model. Litwak regards the inclusion of these contradictory forms as a source of organizational conflict.

Lawrence and Lorsch (1967a) emphasized the effects of differentiation. Where each unit (such as research, sales, or production) performs a different type of task and copes with a different segment of the environment, the units will develop significant internal differences. Such units may differ from each other (*a*) in the degree of structure, that is, tightness of rules, narrowness of span of supervisory control, frequency and specificity of performance review; and in the orientation of its members; (*b*) toward the environment, such as, new scientific knowledge versus customer problems and market opportunities versus costs of raw materials and processing; (*c*) toward time, such as planning time perspective; and (*d*) toward other people, such as, openness and permissiveness of interpersonal relationships. Lawrence and Lorsch measured these differences in six plastics organizations with the results shown in Table 1.

TABLE 1

DIFFERENCES RELATED TO ENVIRONMENT OF DEPARTMENTS.*

Departments	*Orientation toward environment*	*Orientation toward time*	*Degree of formality in departmental structure*	*Permissiveness versus directiveness in orientation toward others*
Applied research	Techno-economic	Long	Medium	Medium
Sales	Market	Short	High	Low
Production	Techno-economic	Short	High	High

*After Lawrence and Lorsch (1967)

Lawrence and Lorsch believe this fourfold differentiation is largely a response to the degree of uncertainty in the environments of the different departments. They use a notion of optimum degree of differentiation, which depends upon the task environments. Thus, either overdifferentiation or underdifferentiation has implications for the coordinative processes. Although greater differentiation apparently results in more potential for conflict, these authors do not assume that more manifest conflict will automatically result. In their study of six plastics organizations, the degree of intergration did not, in fact, vary strictly with the degree of differentiation, which depends upon the task environments. Thus, either overdifferentiation or underdifferentiation has implications for the coordinative processes. Although greater differentiation apparently results in more potential for conflict, these authors do not assume that more manifest conflict will automatically result. In their study of six plastics organizations, the degree of integration did not, in fact, vary strictly with the degree of differentiation.

ROLE DISSATISFACTION

Role dissatisfaction, stemming from a variety of sources, can be a source of conflict. Blocking status aspirations in purchasing agents (Strauss, 1962) and in staff members (Dalton, 1959) led to conflict with other units. In these cases, professionals felt they lacked recognition and opportunities for advancement. Similarly, White (1961) stated that members might feel that the growth of their units and its external status did not meet their needs, and therefore might enter another unit or withdraw from contacts which were painful reminders of the lack of status. Where one unit informally reports on the activities of another unit, resentment can occur, as with staff units reporting to management on production irregularities (Dalton, 1959). Argyris (1964) and Dalton (1959) both argued that role dissatisfaction and conflict followed where one unit with the same or less status set standards for another.

Where there is role dissatisfaction, ambiguities in the definition of work responsibilities further increase the likelihood of interunit conflict. Landsberger (1961) pointed out that ambiguities tempted the dissatisfied unit to engage in offensive maneuvers so as to improve its lot, and thus induced other units to engage in defensive maneuvers.

Role dissatisfaction and ambiguity are related to more basic organizational variables, including growth rate, organizational level, and hierarchical differences. Organizational growth appears to have offsetting consequences. Slower rates of organizational growth and of opportunities for promotion increase role dissatisfaction, but are also accompanied by fewer ambiguities. Interfaces higher in the organization are more likely to be marked by conflict to redefine departmental responsibilities. At the higher levels, jurisdictional boundaries are less clear (Pondy, 1967), and the participants perceive more opportunity to achieve some restructuring. Steep and heavily emphasized hierarchical differences in status, power, and rewards were seen by Thompson (1961) as responsible for some lateral conflict, because these factors tended to activate and to legitimate individual aspiration for increased status and power and tended to lead to increased upward orientation toward the desires of one's superiors, rather than to problem orientation and increased horizontal coordination.

AMBIGUITIES

In addition to its interaction with role dissatisfaction, ambiguity contributes to interunit conflict in several other ways. Difficulty in assigning credit or blame between two departments increases the likelihood of conflict between units. Dalton (1959) attributed part of the staff-line conflict he observed to the fact that although improvements required collaboration between line and staff units, it was later difficult to assess the contribution of each unit. Similarly, disputes resulted between production and sales units, when it could not be determined which department made a mistake (Dutton and Walton, 1966).

Low routinization and uncertainty of means to goals increase the potential for interunit conflict. This proposition is supported by Zald (1962) in his study of interunit conflict in five correctional institutions. Similarly, ambiguity in the criteria used to evaluate the performance of a unit may also create tension, frustration, and conflict (Kahn, et al., 1964). Organization planning, which includes clarity of rule definition, correlated positively with measures of lateral coordination and problem solving in a study of ten hospitals by Georgopoulas and Mann (1962).

DEPENDENCE ON COMMON RESOURCES

Conflict potential exists when two units depend upon a common pool of scarce organizational resources, such as, physical space, equipment, manpower, operating funds, capital funds, central staff resources, and centralized services (e.g., typing and drafting). If the two units have interdependent tasks, the competition for scarce resources will tend to decrease interunit problem solving and coordination. Also, if competition for scarce resources is not mediated by some third unit and they must agree on their allocation, they will come into direct conflict.

COMMUNICATION OBSTACLES

Semantic difficulties can impede communications essential for cooperation. Strauss (1964) observed that differences in training of purchasing agents and engineers contributed to their conflicts. March and Simon (1958) stated that organizational channeling of information introduced bias.

Common experience reduces communication barriers and provides common referents. Miller (1959) proposed that the less units know about each other's job, the less collaboration and that lack of knowledge can lead to unreasonable interunit demands through ignorance. Cozer (1956) argued that accommodation is especially dependent on knowledge of the power of the other unit.

PERSONAL SKILLS AND TRAITS

Waltan and McKersie (1965), reviewing experimental studies, found that certain personality attributes, such as high authoritarianism, high dogmatism, and low self-esteem, increased conflict behavior. Kahn et al. (1964: 256) found that in objective role conflict persons who scored lower on neurotic anxiety scales tended to depart more from "cordial, congenial, trusting, respecting, and understanding relations," and introverts tended to lose their confidence, trust, and respect for work associates more than extroverts.

Most interunit relationships are mixed-motive situations, which require high behavioral flexibility to manage optimally. A person with a narrower range of behavioral skills is less likely to exploit the integrative potential fully in an interunit relationship. He may either engage in bargaining to the exclusion of collaborative problem solving, or withdraw or become passive (Walton and Mckersie, 1966). Dalton (1959) and Thompson (1960) found that personal dissimilarities, such as background, values, education, age, social patterns, lowered the probability of interpersonal rapport between unit representatives, and in turn decreased the amount of collaboration between their respective units. Personal status incongruities between departmental representatives, that is, the degree to which they differed in rank orderings in various status dimensions (such as length of service, age, education, ethnicity, esteem in eyes of superiors, pay and so on) increase the tendency for conflict (Dutton and Walton, 1966).

Personal satisfaction with the internal climate of one's unit decreases the likelihood that a member will initiate interunit conflict. Seiler (1963) observed that in one firm, constructive handling of interdepartmental differences occurred in part because the members of each department derived social satisfaction from their work associates, had high job interests and good opportunities for promotions, and were not in conflict with each other.

INTERDEPARTMENTAL RELATIONSHIP

TACTICS OF CONFLICT AND INDICATORS OF COLLABORATION

The literature on interdepartmental relations has been most vivid in its description of manifest conflict and collaboration processes. Dalton (1959) observed that staff units were encouraged by top management to monitor and report on the activities of line units, and the line units retaliated by resisting the ideas of the staff units and discouraging their promotions. He also observed power struggles between line units and documented the conflict tactics of coalitions, distortion of information, and misappropriation of resources.

Strauss (1962) observed the tactics of purchasing agents who wished to increase their authority and influence over decisions shared with engineering and production. The purchasing agents made restrictive rules for the other units, evaded their rules, relied on personal contacts and persuasion to subvert the other units, and altered organization structure.

Focusing on positive relations, Georgopoulas and Mann (1962) used coordination as their broadest concept, which included "the extent to which the various interdependent parts of an organization function each according to the needs and requirements of the other parts of the total system. In a study of ten hospitals, they found that over-all coordination correlated positively with (*a*) shared expectations, (*b*) absence of interorganizational tension, (*c*) awareness of problems and solving of problems, and (*d*) ease of communication.

SYSTEM CHARACTERISTICS OF AN INTERUNIT RELATIONSHIP

Attempting to incorporate aspects of the approaches just described, Walton (1966) developed a theory which also explains the system dynamics of conflict and collaboration in the interunit relationship. Three components of the relationship are considered : (a) exchange of information in the joint decision process, (b) structure of interunit interactions and decision making, and (c) attitudes toward the other unit. Two opposite types of relationships, "integrative" and "distributive," are postulated as frequently encountered systems of interunit behavior (see Table 2). This particular model now appears to be most

TABLE 2

COMPONENTS AND CHARACTERISTICS OF CONTRASTING TYPES OF LATERAL RELATIONSHIPS*

Component	*Type of Lateral Relationship* *Integrative*	 *Distributive*
Form of joint decision process	Problem-solving : free exchange of information, conscientious accuracy in transmitting information	Bargaining : careful rationing, and deliberate distortion of information
Structure of interaction and framework of decision	Flexible, informal, open	Rigid, formal, circumscribed
Attitudes toward other unit	Positive attitudes: trust, friendliness, inclusion of other unit	Negative attitudes: suspicion, hostility, dissociation from other unit

*After Walton (1966).

applicable to lateral relations where the dominant transaction at the interface is joint decision making; where there is relative symmetry in interdependency; and where the transactions required are relatively frequent and important.

In the most general sense, the chain of assumptions underlying Walton's systems theory of lateral relationships (and explaining the distributive syndrome, in particular) is as follows: First, an antecedent, say goal competition between participants engaged in joint decision making, induces the units to engage in concealment and distortion tactics in their exchange of information, such that joint decision making takes on the character of bargaining. Second, in order to ration and distort information effectively and systematically, a unit will attempt to place limitations on the interactions and other behavior of their counterpart in order to make them more predictable and keep them within certain boundaries. Third, the way information is handled (concealment, distortion, etc.) and the way interactions are patterned (circumscribed, rigid, etc.) results in suspicion and hostility. Furthermore, these negative attitudes have a feedback effect which tend to reinforce the same interaction structure and information-handling pattern.

Regardless of the antecedents, the theory hypothesizes that the conflict relationship will become fixed as a result of : the tendency to generalize a conflictful orientation to the many areas of interunit decision making, the self-reinforcing nature of the various elements of a relationship pattern, the reciprocal nature of a conflictful orientation between units, and the tendency toward socialization and institutionalization of these orientations within a unit.

The individual propositions contained in the model are generally supported by a review of the relevant literature in experimental social psychology (Walton, 1966). The hypothesized variation of attributes of a relationship are also generally supported by a comparative field study of production-sales relationships in six plants (Walton, Dutton, and Fitch, 1966). The hypothesized dominant cause-effect relationships among process, structure, and attitude are anecdotally supported in a comparison of two plants (Dutton and Walton, 1966).

The theory suggests that the total lateral relationship is influenced or determined by contextual factors operating first upon the way the parties exchange information, with the effects of interaction structure and interunit trust as subsequent reactions. However, although the process of exchanging information may be the most frequent determinant, it is not exclusively the point of entry in the lateral relationship. For instance, personality and status may first influence attitudes such as trust and friendliness in which case the pattern of information exchange and interaction structure are a secondary reaction.

MANAGEMENT OF THE INTERFACE

The relationship between units is largely a function of the conflict potential inherent in the factors already discussed; but it is also subject to control by the participants, their effectiveness depending upon how much conscious effort they invest in management of the interface and the appropriateness of the techniques they use.

Interface conflict will be managed best where the attention devoted to interface management corresponds to the degree of differentiation between departments. Lawrence and Lorsch (1967a) compared integrative devices used by three high-performing organizations selected from industries with high, medium, and low differentiation. The most differentiated firm had the most elaborate array of interface management techniques, including a separate integrative department with the primary purpose of coordinating the basic functional units, permanent teams consisting of representatives of members from functional units together with the integrative department, direct contact across hierarchies at all levels, procedures for appeal to a common superior, and a coordination system involving written communications. As expected, when all three organizations were compared, the same rank order obtained for the differentiation scores as for the degree of elaboration of integrative devices. Explicit conflict-resolution mechanisms can be overelaborate, however. For example, a formal coordinative unit was used between slightly differentiated units in a low-performing unit. Lawrence and Lorsch concluded that the units were not sufficiently differentiated to justify the coordinative unit, and the result was that the superflous unit added noise to the system, actually decreasing coordination.

In their comparison of six plastics firms, Lawrence and Lorsch found that three factors promoted effective resolution of interdepartmental conflict and thus high organizational performance. First, where there is a separate coordinating person or unit, the coordinating unit will be most effective if its degree of structure and the goal, time, and interpersonal orientations of its personnel are intermediate between those of the units linked. Second, where there is a separate coordinating unit, conflict resolution will be more effective if its personnel have relatively high influence based on perceived expertise, and if they are evaluated and rewarded on over-all performance measures embracing the activities of the several departments. Third, interunit cooperation will be more effectively achieved and over-all organizational performance will be higher to the extent that managers openly confront differences rather than smooth them over to force decisions. The more subtle aspects of confrontation are discussed by Schmidt and Tannenbaum (1960) and Walton (1968), who analyze the advantages and risks of confronting differences, the timing and skill required, as well as the conditions under which confrontation is most appropriate.

Seiler (1963) also observed techniques for management of interunit conflict. A department may keep its own records, so as to reduce requests for information and thus avoid distasteful contact; a junior member may be assigned as the liaison person, where his presence will not arouse status conflict; and inventories may be introduced to reduce scheduling interdependence.

CONSEQUENCES OF INTERUNIT CONFLICT

The manifest characteristics of interunit conflict include : a competitive orientation, bargaining and restrictions on information, circumscribed interaction patterns, and antagonistic feelings. To determine whether the conflict has an adverse effect on organizational performance, one must assess the consequences of these characteristics. Whether a competitive orientation is in fact energizing or debilitating for members of the unit will depend in part on the personalities of the participants. For some, competition is motivating and arouses energies not otherwise available for organizational tasks; for others conflict is a major threat. Whether competitive energy will contribute to over-all performance depends upon whether a unit can improve its performance without interfering with the performance of another unit.

Another factor governing the motivational effect of conflict is the degree of symmetry in tactics between units. Crozier (1961) reported that managers who were not able to retaliate when conflict was initiated responded by withdrawing commitment from their job. Seiler (1963) postulated that internal social stability, value sharing between units, and a legitimate authority hierarchy between units were important in influencing whether interunit competition would result in destructive conflict.

According to Strauss (1964), the competitive orientation that accompanies conflict behavior may also contribute to a system or checks and balances, increase the availability of new ideas to compete with established ones, and decrease the type of collusion among middle managers, deprives higher-level top management of information.

It seems reasonable to assume that the more important the interdependence, the more a restriction on interunit information becomes damaging. When a lateral relationship involves joint decision making, each unit can bias the decisions in its own favour by controlling information relevant to these decisions. Even minor concealment or distortion can be of great importance, if the decisions are key ones.

The structural attributes of a conflictful relationship are not necessarily variable in the lateral relationship, as, for example, the number of liaison contacts between departments, which may be specified by higher authorities. Whether a structural attribute has a positive or an adverse effect on over-all performance depends on factors than structure. For example, in a conflictful pattern more problems are referred to the superiors. On the one hand, referral may overload a superior; on the other, a superior may find himself more informed about operations and subordinates. Similarly, referral of problems requiring new policy may also be organizationally useful. Also, the inability of a decision-making pair to change decision rules or apply them flexibly may result in decisions that are not innovative. However, given the larger network of task relationships in which the pair is embedded, the inflexibility may produce a degree of predictability, which is valuable for some other reason.

Chanelling all interunit interactions through a few liaison persons in a conflict syndrome often reduces over-all performance; for where other persons are either affected by an interunit decision or have potentially relevant information or opinions, ignoring their contribution decreases the quality of the decisions and lowers the commitment to decisions.

Apart from their influence on the quality of decisions, the attributes of an interunit relationship may impinge upon coordinative activities. For example, a tendency to avoid contact can result in implementation that lacks coordination. The seriousness of the effect of conflict in decreasing the rate of interaction between the units therefore depends in part upon how much coordination is required to implement joint decisions.

Conflict relationships involve stereotyping and include attitudes of low friendliness, low trust, and low respect. Such attitudes indirectly affect performance. For example, low trust limits the flow of relevant task information and decreases coordinative interactions. Furthermore, some persons experience psychological strain when other persons dislike or distrust them. Dalton (1959:95) reported that staff men were shocked by the need to engage in conflict that required them to use their interpersonal skills as much as their academic skills. The stress of this interpersonal or intergroup climate may result in higher turnover or withdrawal from interdepartmental relations.

A positive by-product of interunit rivalry is more unit cohesion, which contributes to cooperation within the unit. Each unit may become more receptive to directives from their own hierarchy; but sometimes the centralization of control within the unit causes frustration in subordinates (Seiler, 1963). Competition may serve as a useful training device. Managers' insight into how the respective goals of interdependent units contribute to over-all goals may be sharpened. Negotiating and policy-making skills of prospective top managers may be increased, and tolerance of unavoidable conflict may be developed.

Some of the postulated relationships between attributes of a conflictful syndrome and consequences for over-all performance are shown in Table 3. Each of the relationships is subject to limiting conditions, some of which were noted earlier. The point being made is that conclusions about the effect of a generally competitive or conflictful relationship can only be made on the basis of an analysis of the specific components of the pattern together with an analysis of the task. Comparative field data are needed to evaluate the validity of the concept of an optimum degree of competitiveness and rivalry. The optimum might be expected to vary, depending upon the type of interunit interdependence, the type of work of each unit, and the personalities of unit representatives.

RESPONSES OF HIGHER EXECUTIVES

RESPONSE TENDENCIES OF EXECUTIVES

The response of executives refers to how superiors react to information about subordinate organizational units; that is, to low performance and attributes of the interunit relationship itself. Here "low performance" means inadequate productivity, low adaptability, or inability of the units to conserve their human and other resources.

TABLE 3

CONSEQUENCES OF INTERUNIT CONFLICT

Attributes of conflictful lateral relationships	*Illustrative consequences*
Competition in general	Motivates or debilitates Provides checks and balances
Concealment and distortion	Lowers quality of decisions
Channeled interunit contacts	Enhances stability in the system
Rigidity, formality in decision procedures	Enhance stability in the system Lowers adaptability to change
Appeals to superiors for decisions	Provides more contact for superiors May increase or decrease quality of decisions
Decreased rate of interunit interaction	Hinders coordination and implementation of task
Low trust, suspicion, hostility	Psychological strain and turnover of personnel or decrease in individual performance

A manager's response is a combination of his habitual patterns, emotional reactions, and deliberate responses. This idiosyncratic element in the system of interunit conflict shown in Figure 1 is a major problem in developing a general explanatory or predictive model of the total system. For the same reason, however, it is an opportunity for improving the interunit relationship. Several automatic responses to low performance can be noted for illustration. If the joint performance of two units is considered inadequate, higher executives may place particular emphasis on observable, short-run measures of performance for each subunit. Thus, poor performance, whatever its source, may lead to the very rewards, controls, and styles of supervision here shown to be antecedents to conflict. If the relationships hypothesized are valid, reinforcing feedback will lead to more interunit conflict and still lower performance. White (1961) reported that higher executives who were dissatisfied with the performance of subordinate units frequently responded by reorganizing the units. The feelings of status depreciation or power deprivation and the ambiguity which frequently follow a reorganization may increase the potential for conflict.

EXECUTIVE RESPONSES IN RELATION TO MODEL

The model has implications both for determining what needs changing and for developing a strategy for achieving the change. Executive responses can either reinforce and intensify a conflict pattern, or create pressures to change it. Much depends upon how sophisticated a diagnostic model the manager uses. Ideally he would take into account all the valid implication of a model of the antecedents, dynamics, and consequences of conflict.

The model as a diagnostic tool. Cause-and-effect relationships can be traced back through the model as follows :

1. Are there manifestations of conflict or low collaboration in the lateral relationship ? If not, this interunit conflict model is not relevant. If so, determine the particular aspects of the relationship processes that are impinging upon performance; for instance, distortion of information, infrequent interaction, and lack of mutual assistance.

2. Are these dysfunctional elements of the conflict process inherent in a competitive interunit relationship ? If not, determine how the management activities at the interface are inadequate, and whether these can be modified by suggesting or requiring changes in them. If they are, determine what particular contextual variables are responsible for the competitive orientation; for example, scarce resources, competitive reward system, asymmetrical task interdependence, or personalities of key liaison personnel.

3. Which of the contextual factors that create the interunit conflict are not inherent in the technology or are not essential parts of the administrative apparatus ? Determine which of these might be modified to have a significant influence on the relationship.

An exhaustive treatment of the factors which are instrumental in altering a conflictful interunit relationship and which executives can modify would review the entire model. Instead, only a few relevant executive responses that have been treated in the literature are considered.

Thompson (1960) identified three areas of executive response: First, "Within limits, administrative allocations (of rewards, status symbols, resources, etc.) determine the relative deprivation experienced by organizational members and thereby control potential conflict inherent in modern technologies" (392). Second, "To the extent that recruitment and selection procedures limit or maintain it within manageable pattern, the organization can manage the potential conflict in latent role diversity" (394). By latent role diversity, Thompson means differences in socioeconomic status, ethnic background, and so on. Third, "By varying the distinctiveness of the organization, the proportion of members exposed, and the frequency and regularity of their exposure, the organization gains a measure of control over conflict stemming from potential reactions to competing pressures" (396). Here he is referring to organizational conflict induced by ideas or pressures from the organization's environment.

Landsberger (1961) states that horizontal differences in authority can be more strongly supported by organizational logic, and need be less dependent on arbitrary fiat than vertical authority. On the other hand, differences in lateral authority are less likely to be stated explicitly, and therefore tend toward conflict. Consequently, one executive response is to make explicit rules allocating final authority for decisions on interunit activities, so as to depersonalize the order. A related response is for higher executives to develop rules to cover an increasing proportion of interunit transactions, and thereby confine decisions to exceptional situations, a practice noted by both Brown (1960) and Landsberger (1961).

Pondy (1967) refers to other devices which are not only available to those who manage the interface, but which can also be included in the executive response repertory: reducing dependence on common resources, transfer pricing between units, loosening schedules, or introducing buffer inventories. Litwak (1961) suggests many "mechanisms or segregation," used to reduce the conflict generated by contradictory social forms which modern organizations must incorporate, including stricter role separation between those for whom effect and those for whom strict objectivity is important; physical separation, such as moving the research facility away from the production facility; and transferral occupations, such as engineers who maintain involvement with a product from research to production stages.

Implications of the Model for Change of Strategy. Ideally, higher executives would develop a strategy for modifying the level of interunit conflict and collaboration which not only acts on the problem diagonised, but also takes into account the self-perpetuating characteristics of conflict relationships. The analysis of the dynamics of lateral relationship not only underscored the self-reinforcing tendencies of conflictful processes of information exchange, interaction patterns, and attitudes between units; it also stressed the reciprocal and regenerative tendencies of conflictful approaches to the interface.

These self-reinforcing, regenerative and reciprocal tendencies lead to persistence of a conflict process; therefore, higher management needs to engage in activities designed to replace existing patterns. Blacke, Shepard and Mouton (1964), and Walton (1968) have outlined theories and techniques of third-party consulting interventions. The underlying assumption is that the units must find a new culture in which to view and understand each other. Various techniques of re-education can be used to change intergroup perceptions based on stereotypes, misunderstanding the intention of others, and past history of hostile relations. Thus, whether higher executives conclude that basic contextual factors or techniques for interface management need to be modified, change effort will be effective only if it includes some interventions which help change the existing pattern.

CONCLUSIONS

Several features of the model of interunit conflict deserve empahsis : First, no a priori assumption is made that interunit conflict should be reduced. Second, the model recognizes a large number of potential determinants of conflict and conflict-reinforcement syndromes. Third, the model incorporates contextual and structural factors emphasized by sociologists and economists, as well as interpersonal interaction phenomena studied by social psychologists. These approaches are integrated in the explanatory model and in the action implications of the model. Fourth, the model of the internal dynamics of the relationship particularly throws light on the problems of unfreezing the existing patterns. Fifth, the ability to manage interunit conflict is shown to require sophistication in executive response.

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DOUGLAS McGREGOR AND
IRVING KNICKERBOCKER

Union-Management Cooperation : A Psychological Analysis

SINCE THE CAMPAIGN of the War Production Board [in 1941] many plants throughout the country have been experimenting with labor-management production-drive committees. The results achieved have varied tremendously. Some of these committees have been dismal failures. Many have been mildly successful. A few have been so successful that the participants themselves have been startled.

The idea that cooperation between management and union might be a powerful force to increase productive efficiency is not a new one. It has been the subject of experimentation for many years in a few industries, notably the railroads, certain branches of the men's clothing and the needle trades, and, more recently, steel.[1] However, this campaign of the War Production Board has been the first attempt to promote such cooperation on a large scale.

The literature contains a number of case studies of union-management cooperation as well as many partisan arguments on the subject,[2] but there have been few attempts to analyze union-management coope-

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[1] Cf. S. H. Slichter, *Union Policies and Industrial Management*. Washington, D. C. : The Brookings Institution, 1941, Chaps. 14–19; and C. S. Colden and H. J. Ruttenberg, *The Dynamics of Industrial Democracy*. New York : Harper and Brothers, 1942, Chaps. 8 and 9.

[2] For references, cf. *Union-Management Cooperation with Special Reference to the War Production Drive*. Industrial Relations Section, Princeton University, Princeton, N. J., May 1942.

ration from a psychological point of view. Nevertheless, cooperation is a relationship between people. It is, therefore, a psychological phenomenon. The purpose of this article is to present an analysis in terms of some of the important psychological factors that influence the success or failure of cooperation between management and union.

The emphasis in this analysis will be upon the relationship between management and union *within* the company. We shall be concerned with the thinking and behavior of workers, union leaders, and management in an industrial organization. We shall discuss attitudes, points of view, personality traits, and habits of thought and action as important psychological factors determining the nature of the relationship.

Without in any sense denying their importance we shall ignore external, social and economic factors such as the impact of the business cycle. Although the details of the relationships will undoubtedly differ as these external factors change, it is nevertheless true that all forms of union-management relations are to be found under almost any given set of external circumstances. This is an analysis of the psychological determinants of labor-management relations *within* the plant.

UNION-MANAGEMENT RELATIONS AS A PROCESS OF PSYCHOLOGICAL GROWTH

It has frequently been noted that union-management relations follow a fairly typical course of historical change. When a union is first organized in a plant, the relationship is likely to involve a high degree of suspicion and conflict. Usually this "fighting stage" gradually disappears and is followed by a relatively neutral stage characterized by a decrease of suspicion, a growth in mutual understanding, and in general a mildly friendly atmosphere. This is the stage of successful collective bargaining. Where circumstances have been favourable, a third stage in union management relations emerges. This is a stage in which suspicion and conflict have disappeared, and in which the atmosphere is one not alone of acceptance but of constructive joint efforts to solve common problems. The term *union-management cooperation* has been applied to this third stage of the historical process.

This transition from stage to stage becomes more meaningful if it is viewed not merely as a process of historical change, but as a process of psychological growth and development similar to that experienced by the individual as he passes from infancy through childhood and adolescence to maturity. The transition 'becomes even more meaningful if the emphasis is laid on the emotional aspects of the developmental process rather than on the intellectual aspects alone.

There are four important characteristics of psychological growth that apply equally to the individual and to union-management relations. In the first place, psychological growth is a slow and arduous process. It involves a myriad of small changes in thinking and behavior which normally occur imperceptibly day by day. Although the rate of growth may vary somewhat, depending upon circumstances, sudden jumps occur rarely and then only as a consequence of rather severe crises. Thus, some cooperative plans have emerged suddenly as a result of the very real threat of the complete bankruptcy of the company. This is not normal growth, but an abnormal "spurt" brought about by a crisis.

In the second place, psychological growth is not an all-or-nothing process. Even the emotionally mature adult retains some childish habits. On the other hand, the child can in some ways be startlingly mature. The same thing is true of union-management relations. The growth process is uneven; maturity is achieved in one small way today and in another tomorrow. Many "childish" habits and ways of thinking are retained long after their usefulness has apparently disappeared. The differences between one stage of union-management relations and another can be viewed only in the over-all sense. Detailed analysis reveals elements of every stage at any given time. Each individual participant possesses some habits and attitudes that are childish and others that are mature, and the interacting individuals differ among themselves in their over-all maturity.

The third characteristic of growth is that it may be arrested at any stage. Just as some individuals of forty are still at an adolescent level of emotional development, so do some union-management relationships remain in the fighting stage for long periods of time. This characteristic of being arrested in the course of development is so common that real emotional maturity is rare among individuals. Likewise genuine cooperation between union and management is rare. When one recognizes how complex are the necessary emotional adjustments between individuals and groups in union-management relations it is not surprising that only a small proportion of union-management combinations have succeeded in reaching a fair degree of maturity.

Finally, psychological growth, unlike physical growth, is a two-way process. Retrogression is not at all unusual. Occasionally, in a critical situation, mature habits and ways of thinking that have been acquired painfully and slowly will suddenly disappear, to be supplanted by childish ones that have been presumed to be long since dead. In an extreme sense this phenomenon may be observed when civilized people become barbarians under the stress of strong emotions (for example, in a lynching mob). The same phenomenon may be observed in a milder form when, in a cooperative meeting between union and management, someone inadvertently brings up a point that strikes at the heart of an emotional "blind spot" of one or more of the participants. Sometimes the results of the retrogression last not for minutes or hours but for months or even years.

In the end, the psychological growth of union-management relations is no more than the growth of the participating individuals. The situation in any given organization is exceedingly complex because of the varying extent to which one individual or another dominates the picture, and because a number of different individuals are participating in the relationship.

The process of psychological growth in labor-management relations takes place through the interaction of the participants. The interaction occurs in face-to-face meetings between representatives of the two groups, and in the day-to-day contacts between individuals on the job. A change in management's ways of acting or thinking influences the union, and results in a change (not necessarily the same one, to be sure) on the part of the union. This alteration in the union's thought or action in turn reacts upon management, and through the circular interaction the relationship develops.

In the past, there was very little interaction, because management dominated the relationship almost completely. During the past decade, the development of the union movement has changed the picture from one of *action* by management on the workers to one of *interaction* between them. Interaction is the means by which the relationship grows.

The Difference between Collective Bargaining and Cooperation

The use of two different terms may imply mutually exclusive phenomena, but in this case that is not intended. Collective bargaining and cooperation are terms referring to overlapping stages of development in union-management relations. Just as a relatively mature adolescent may be more like an adult than like the average adolescent, so may collective bargaining in a mature relationship resemble cooperation more than it resemles typical collective bargaining. In the discussion that follows, we shall describe an arbitrarily selected point in each of two wide ranges of phenomena. Our descriptions are intended to throw into relief the differences between the two processes, and therefore the selected points are well separated. Many individual instances of collective bargaining or cooperation are more or less mature than those that would be fitted exactly by our definitions.

Collective bargaining is essentially a competitive process. It arose historically by carrying over to the relationship between union and management certain practices that were at one time habitual in the relationship between competing firms. The bargainer tries to outguess the other fellow, to hide his own motives, to play up the concessions he grants his opponent, and to play down those he receives. The process is reasonably well characterized by the metaphor of "playing one's cards close to the chest."

Genuine cooperation, on the other hand, is a shared effort on the part of individuals or groups to achieve jointly desired goals. It is not a bargaining process, even though it may develop from bargaining practices. Effective cooperation can occur only when the "cards are face up on the table." Regardless of appearances and "stage dressing," real collective bargaining is essentially characterized by conflict, cooperation by mutual aid.

We are not attempting to criticize collective bargaining or to praise cooperation. Both procedures have important roles in union-management relations. Collective bargaining does not disappear when cooperation emerges. There are some problems, notably wage negotiation, that are likely to remain matters for collective bargaining regardless of the degree of cooperation that exists between a union and management.

There is nevertheless some shift as the developmental process takes place. Some of the things that were originally dealt with through collective bargaining come in time to be dealt with cooperatively. For example, a great many grievances come to be handled in time by cooperative means. As the union and management deal with each other, and as mutual trust and confidence begin to develop, there comes a gradual recognition that the real aim of a grievance procedure is the solution of common problems to the equal satisfaction of all concerned. This recognition leads to a tendency to look behind the immediate, apparently conflicting demands presented with any particular grievance to the really basic desires that are present but unexpressed. In many cases the basic desires of the two parties are found not to be incompatible.[3] When this occurs, the settling of a grievance becomes a cooperative procedure in which both sides attempt to find a solution equally satisfying to both. To the extent that this happens, the grievance procedure becomes a cooperative process rather than one of collective bargaining. There are some grievances, of course, that involve a genuine conflict of interest or desire, and these cannot be handled cooperatively.

It is perfectly possible for union and management to cooperate on some things and to compete on others. What is not possible is for them to compete and to cooperate at once on the same problem. Matters for collective bargaining (involving conflict) cannot at one and the same time be matters for cooperation (involving mutual aid). This point is fundamental, and must be realized by both parties before genuine cooperation becomes possible. It is for this reason that companies setting up joint production-drive committees were urged by the War Production Board not to permit matters connected with collective bargaining to be discussed in the meetings of the production committees.

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[3] Cf. Mary Follett, *Creative Experience.* New York : Longmans, Green, 1924.

Recently a member of management in a discussion with union leaders raised a question that is pertinent here. He said to the union leaders: "When you fellows go on to the point where you have organized practically all of industry, and when you have gotten practically all you can get from management without forcing it into bankruptcy, what then?" This question points to the fundamental distinction between collective bargaining and cooperation. If the returns from a business enterprise are considered to be a pie, there are two ways for the union to get more pie. One way is to fight for as big a piece as can be obtained. That is collective bargaining. If the union has gotten as big a piece as possible by this means, there remains another way: to strive to increase the size of the pie so that there will be more for everyone who partakes of it. The concept of union-management cooperation springs from the latter point of view.

There is one more point to be considered in connection with the distinction between collective bargaining and cooperation. We have already indicated that some problems are likely to remain matters of collective bargaining indefinitely. What, then, are the problems that lend themselves most readily to cooperative effort? One thinks first of the problems of productive efficiency. Through cooperative effort it is possible to increase output and reduce waste, thus increasing the size of the pie.

Many companies have experimented with cooperative procedures for dealing with other problems. For example, although the establishment of the general level of wages is accomplished through collective bargaining, problems connected with the internal wage structure may be handled with considerable success on a cooperative basis. Job evaluation plans are rather widely administered today on a joint basis.[4] A few firms have had some success in the joint administration of wage incentive systems.[5] Many problems connected with the formulation of a general labor policy, such as would be printed in a booklet for new employees, can be successfully handled cooperatively.[6] As suggested above, the grievance procedure is in part amenable to a cooperative approach. There have even been instances where the union has cooperated with the company on problems connected with merchandising and selling.[7]

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[4] Cf. H. B. Bergen, "Union Participation in Job Evaluation." *Personnel*, 1942, 18, No. 5, 261—268.

[5] The Murray Corporation, Detroit, is an outstanding example.

[6] D. D. Decker, "A Practical Supervisory Training Program." *Personnel*, 1939 16, No. 2, 62—68.

Union-management cooperation may encompass a variety of phenomena. It begins to appear in rudimentary form during the neutral, or collective bargaining, stage of the relationship. Its further development is often unnecessarily delayed because of a failure of the participants to recognize clearly the essential differences between collective bargaining and cooperation.

BASIC DIFFERENCES IN UNION AND MANAGEMENT ORGANIZATION

We have pointed out that growth in union-management relation takes place through the medium of the interaction of representatives of the two groups. Certain basic differences between the management organization and the union organization materially affect the nature of the interaction that takes place and thus influence the growth of union-management relations. The most important difference, and the only one that we shall discuss, is in the way in which authority and responsibility are handled by the management organization and the union organization.

Industrial management is so organized that control is from the top down, with authority and responsibility delegated by the few to the many. Those at the top who have final authority are presumably the most capable and the most skilled of the whole management group.

The control by those at the top is exerted over the management organization through the formulation of a policy that sets limits within which action may be taken by the rest of the group. This policy is usually a fairly general one and emphasizes long-range achievements. It may be written down, or it may exist only in the minds of those at the top. It may be implemented by few or many rules and regulations.

Top management policy is aimed at the promotion of a profitable enterprise.[8] This is essentially the reason for the existence of the management organization. In promoting a profitable enterprise, management is likely to stress in its ‘policy the necessity for freedom of action, and to feel that, without it, control of the business (purchasing, manufacturing, sales) is lost. Restrictions are placed upon the

[7] Jules Hochman, *Industry Planning Through Collective Bargaining.* A program for modernizing the New York Dress Industry, as presented in conference with employers on behalf of the Joint Board of the Dressmakers' Union. International Ladies' Garment Workers Union, New York, 1941.

[8] There are, of course, top managements whose policies are aimed actually at the achievement of purely personal goals (money, power, etc.). These are not under discussion in the Present article.

authority and responsibility of subordinates so that they will not through their actions interfere with top management's control.

Top management also exerts a fundamental control upon the rest of the management organization through its methods of selecting and training subordinates. A certain degree of conformity with top management policy is required of all subordinates. Those who do not conform are dropped from the organization. A conscious control is exerted in this manner. However, men are selected as a result of unconscious influences that are even more important. A member of management chooses his subordinates not only to fill the logical requirements of his organization, but also to satisfy certain unconscious demands of his own personality. A commonly recognized example is the executive who surrounds himself with "yes men."

Finally, top management exerts control by issuing orders. These may be broad or specific; they may be called by a variety of names, but essentially they are orders that must be followed within certain limits of tolerance by subordinates within the organization. Even the most liberal top management, using the consultative methods that are popular today, retains a veto power over the actions and decisions of its subordinates.

In union organizations, on the other hand, control is ultimately from the bottom upward, with authority and responsibilty delegated by the many to the few.[9] The many who control are usually less skilled and less capable than the leaders whom they control.

The aims of the rank and file are likely to be relatively opportunistic and short-range. Further, they are likely to be very specific rather than general in nature: get this wage increase, settle that grievance to our satisfaction, prevent management from carrying out this course of action, etc.

In the early stages of union-management relations, one of the chief aims of the union membership may be revenge.[10] This depends, of course, upon the past behavior of management. Where this desire for revenge exists, it is usually found that the provision of an opportunity for the open expression of accumulated dissatisfactions removes the necessity for other forms of revengeful behavior. When management has a sincere desire to eliminate past sources of frustration of its workers, there is little need to fear a long continuance of the revenge theme.

The union membership will also try to obtain specific improvements in working conditions and changes in procedural rules such as those of promotion and transfer. Finally, it will be their aim to obtain more money. The important needs for social recognition, security, and recognition of personal worth are difficult for the worker to put into words. The demand for money is tangible. It is therefore an excellent medium for the expression of these needs.

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[9] Although it is true that there are many "boss-ridden" unions, these, like the racketeer managements mentioned in the previous footnote, are arbitrarily eliminated from this discussion. Even among boss-ridden *international* unions there are many "boss-free" union *locals.*

[10] Cf. Golden and Ruttenberg, *op. cit.*, Chap. I, especially pp. 15, 16.

Other aims of a different nature will emerge only after a slow educational process by which first the leaders and then the membership of the union have been brought to the point of thinking in long-range terms.

The authority of the union membership is exerted ultimately through their elected leaders. There is a vast difference between the elective process and the carefully controlled selective and training processes utilized by top management. In addition, at least during the early period of the union's existence, the union demands a greater conformity from its leaders than does management from its subordinates.

Members of management sometimes fail to recognize the consequences of these facts about the union organization. They display a kind of impatience that suggests that they expect to deal with the union in the same way that they would deal with the management of another firm. However, in the early stages of union-management relations, union leaders are specifically instructed delegates. They come to management with explicit instructions to obtain certain definite things. They are not carrying on negotiations within the framework of a policy, expressed or unexpressed.

As time passes and the union attains a greater stability and security, the control over its leaders is somewhat looser. Management's education of the union leaders begins to bear fruit. They can begin to operate within the framework of a policy. Nevertheless, because a union local is basically a democratic organization, union leaders must constantly check the opinions of their constituents to see whether the decisions they are reaching in their negotiations with management are consistent with the aims of the membership. The rank and file always lag behind their leaders in understanding and in willingness to accept broad policies and long-range aims.[11]

There is sometimes an interesting consequence of this "lag." A management that has been dealing with union leaders who have developed and broadened remarkably in perspective may be surprised to find them replaced at election time by a group of suspicious and antagonistic "fighters." What has happened is this: the old leaders, effectively educated by management, have failed in turn to educate the membership of the union, and the "lag" has become too great. *From the point of view of the members*, the leaders have "sold out" to management. They are suspicious not only of their leaders but of the management that has "betrayed" them, and they proceed to elect a new leadership that will "show management where to get off."

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[11] Management's employment policies will, in the long run, materially affect the growth of union-management relations by determining the quality of workers that are employed. Marginal firms, hiring from the lower fringes of the labor market, cannot expect the education of the rank and file of the membership to proceed as rapidly as does that of firms that select their workers from the "cream of the crop."

Union leaders are not alone in being restricted by the attitudes and capacities of their followers. Management is also restricted to some extent by the capacities and attitudes of its subordinates. Many firms have faced a real problem in the re-education of a group of "unenlightened" old line foremen after a union has been organized in the plant. After facing this problem, management will have a much clearer conception of what a union is up against.

We have indicated certain differences in the handling of authority and responsibility by the management organization and the union organization. These differences materially affect the nature of the interaction between management representatives and union representatives. All the discussion that follows must be seen against this background of the difference in nature of the two organizations. The requirements for effective cooperation would be entirely different if the management organization and the union organization handled authority and responsibility in identical ways.

THE INFLUENCE OF THE PERSONALITIES OF MANAGEMENT

It is obvious that the nature of the interaction between management and union will be influenced by the personalities of the participants.[12] Considering management first, we shall discuss one broad characteristic of personality that has a vital influence upon the rate of growth of union-management relations.

The growth will be exceedingly slow and may cease altogether at an early stage of development, unless the key members of management who regularly deal with the union have a genuine, secure confidence in themselves and in their ability to perform the functions of management.

This self-confidence will reflect itself in a variety of ways. The men who possess it are quietly sure of themselves. They know (but they probably do not say so) that whatever happens they will be able to land on their feet. They are able to take criticism, even from their inferiors. They are tolerant—able to see and to face the limitations placed upon union leaders by the nature of the union organization. Since they have a secure confidence in themselves, they can face critical problems in human relations objectively. Their own inferiorities do not become involved in the situation. Consequently, they are able to take a long-range view of the union-management relationship, and their decisions will stand the test of time.

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[12] This is a complex subject. There are a great many ways in which the personalities of the participants influence union-management relations. Within the scope of this paper we can present only a grossly oversimplified discussion of one or two aspects of the problem. For a more detailed discussion of the influences of personality on social interaction, see, for example : A. H. Maslow, and B. Mittelmann, *Principles of Abnormal Psychology*. New York : Harper and Brothers, 1941, esp. Chaps. 4, 14—16.

This basic self-confidence is not so common as might be supposed. Many able managers lack it. Many who are not so able reveal its absence by an overbearing manner.

A lack of self-confidence among the key members of management retards union-management cooperation by slowing up the growth of the relationship in several important ways. The member of management who is lacking in self-confidence cannot treat union representatives as equals. The relationship will be that of the master accepting somewhat warily the help of the slave, with fear and trembling lest the slave overpower him and assume the role of master. Under such conditions the growth process is fixated at a relatively early stage, because genuine cooperation involves at least a measure of equality between the participants.

The individual who lacks self-confidence fears and suspects those with whom he deals, particularly if they are somewhat antagonistic and aggressive. As a result of this fear and suspicion, he will be unwilling to take the *necessary* chances involved in the early stages of union-management cooperation. It is inevitable that the first attempt at cooperation will be harried by hang-overs of past competitive habits. Particularly when the past experience of both parties has involved a fair amount of conflict, they are likely to "stub their toes" frequently when they begin to attempt to cooperate. It requires real confidence to accept these slips and to go on without the feeling that there has been a "dirty deal."

In summary, then, a vital factor influencing the growth of industrial relations will be the presence or absence of a genuine, secure confidence on the part of the key members of management who deal with the union.[13] If this is absent, union-management relations are likely to be arrested at an early stage of the process. Only in the presence of this factor will management have the courage to take the inevitable risks involved in making a transition from the neutral to the cooperative stage of union-management relations.

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[13] It may appear that we are more tolerant of weaknesses in unions than in management. We are, and for a definite reason: The weaknesses of the union movement have been amply criticized in the press, in literature, and from the lecture platform. Constructive criticism of management is far less frequent. The union movement today is a powerful force. We believe that management has much to gain by understanding it, and by learning how to live with it. Hence our emphasis on the ways in which management can change in order to influence the growth of the relationship.

THE INFLUENCE OF THE PERSONALITIES OF UNION LEADERS

The man who has rebelled violently against authority is rarely tolerated in management. He is, however, frequently found among those union leaders who are in power during the fighting stage of union-management relations. He is elected to his office because he possesses exactly the characteristics that the new and insecure union requires if it is to achieve the things its members desire of it at that time. His first appearance across the table from management may cause a good deal of consternation. Such a man is likely to be resentful toward management and completely unwilling to bury the past in order to build a new relationship. Consequently, the growth of industrial relations is arrested so long as he is in power.

In the normal course of events, however, the union achieves some of its purposes, and with this achievement comes a measure of security. When this happens, there is likely to be a change in union leadership. Men get tired of fighting (particularly when it is unnecessary), of fiery oratory, of being whipped into a frenzy at every union meeting. They want someone who will lead them and protect their interests without creating such a fuss about it. They are ready to elect to office intelligent leaders who are quietly confident and who possess skill in dealing with men. It is not until such men are elected to office by the union that the transition to later stages of union-management relations becomes possible.

THE QUALITY OF FOREMANSHIP

Interaction between management and union occurs chiefly in two ways : (1) through meetings between middle or top management and union leaders, and (2) through the daily contact between foreman and union members. The union *leader* acquires an understanding of management's problems, learns the why and the wherefore of company policy, and forms his opinions of "the Company" by means of his contact with the higher levels of management. The union *member* acquires his understanding and forms his opinions about "the Company" (1) from what he is told by the leaders of his union, and (2) from his experience with his foreman. When there are discrepancies between (1) and (2), the union member (like most of us) accepts the evidence of experience. As a result, discrepancies between the "teachings" of top management and those of the foremen will either forestall management's attempts to broaden and develop the union leaders, or will undermine the union leaderships, by widening the gap between leaders and members.

It is obvious, therefore, that the foreman's methods of handling his men, his attitudes, and his personality are important factors influencing the growth of union-management relations.[14] The most progressive and well-intentioned top management may find that its efforts to promote better relations are not achieving the desired results because the foremen resent the union and reveal their resentment in their treatment of the workers. The situation is further aggravated if management (as is often the case) fails to recognize the effect of the behavior of the foremen upon the workers. Failing to perceive the real cause, top management may feel that the union members are unreasonable and recalcitrant. Then the fighting stage of the relationship may be prolonged until the union educates the foremen or succeeds in "running out" the worst of them.

Thus the poor foreman may prevent the execution of the most carefully laid plans for improving union-management relations. He may even provide the reason for the belief that better relations are impossible. Too often he does both, and management—unaware of the real circumstances—unjustly accuses the union of bad faith.

The good foreman, on the other hand, provides a daily proof of management's real intentions. From his behavior the union members may obtain the substantiating evidence that their leaders need to sell them an enlightened, long-range program.

It is apparent, then, that the growth of union-management relations is vitally dependent upon the quality of men selected to be foremen, upon their training, and upon the degree to which they are made an integral part of management. Cooperation between management and union cannot occur until there is cooperation within the ranks of management.

A RECOGNITION OF THE ABILITY OF THE AVERAGE WORKER

The union and the management must each expect the other to contribute something worth while to the solution of their joint problems if there is to be any point in cooperating. This means that each group must recognize in the other an ability that, if utilized, will contribute importantly to their cooperative effort.

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[14] Cf. R. B. Hersey, "Labor Relations of 1941: Cooperation vs. Dictation." *Personnel*, 1941, 17, No. 4, 270-288.

Workers in general respect management's ability, even though they may not respect management's philosophy and motives. Management, on the other hand, has a tendency to underestimate those abilities of workers that may be utilized for cooperative efforts. Aware of the long period of apprenticeship they themselves have served, many members of management are likely to feel that it is absurd to assume that workers could be of material help in promoting more efficient production. So long as the worker is regarded as a mere "quantum of labor," the idea of union-management cooperation is preposterous.

This underevaluation of the worker's potential contribution is especially prevalent where management lacks real self-confidence. When an individual lacks confidence in his own ability, he does not readily recognize it in others. He is likely to protect his opinion of himself by underestimating the ability of the other fellow, particularly if the other fellow occupies a lower position on the social scale.

The abilities of the worker that may be tapped for the cooperative effort differ from those of management. That is the main reason why they are valuable. Management typically has a generalized knowledge of engineering principles and of the production problems and processes in the plant. The worker, on the other hand, has a highly specific knowledge, drawn from his intimate daily contact with the process on which he is working and the machine he operates. As a result, he can often assist management materially in discovering ways of improving the process, of reducing waste, of increasing the efficiency of a machine.

Because he is quite unfettered by a knowledge of the principles of physics, chemistry and engineering, he is frequently able to view the process on which he is working with a perspective that would be impossible for management. A great many important contributions in science and engineering have come about because the inventor was able to take an absolutely fresh slant on the problem. This, above all else, the worker can do. Out of his fresh perspective sometimes emerge suggestions and ideas which, although they may appear initially to be foolish, have real merit. The literature of union-management cooperation contains example after example of suggestions submitted by workers that have proved practical after management has overcome its initial scepticism sufficiently to experiment with them.[15]

Because the worker is likely to be overawed by management's knowledge and ability, he is likely to keep his mouth shut for fear of criticism and ridicule. Management must have a genuine and evident respect for his ability before he will feel free to express himself.

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[15] Cf. Golden and Ruttenberg, *op. cit.*, Chaps. 8 and 9.

We are not suggesting that management must be prepared to put into practice every idea suggested by its workers if cooperation is to be effective. We are suggesting that the cooperation will be fruitless unless management has learned to deal with these suggestions in a way that does not injure the worker's rather shaky belief in his own ability along these lines. Also, management must be flexible enough intellectually to recognize potential merit in a fresh point of view, and to experiment with ideas that may seem revolutionary in the light of accepted engineering principles. The history of science is full of examples of great discoveries that were ridiculed merely because they were somewhat unusual.

The member of management who lacks faith in the worker's ability will demonstrate it readily in his reaction to the idea of union-management cooperation. He will feel and say that it is a waste of time. Although he will not be so likely to say it, he will also feel that it is insulting to him to have to accept the help of workers in solving his problems. He believes that he is on top of the heap because of his own ability, and that workers are on the bottom because they lack it.

The existence of the ability denied the worker by management is often demonstrated when it is utilized to defeat management's purposes. It is the boast of many workers that they can "beat" any incentive system that management can devise, and the evidence tends to support this contention. The longer union-management relations remain in the fighting stage, the more strongly are union members motivated to utilize their abilities in order to outsmart management. It is only when the relationship has gone beyond the neutral stage that these abilities can be harnessed for the solution of common problems.

This respect for the ability of the worker has a corollary: a realization of the potentialities of the worker for learning. Workers are likely to be humble concerning their own potentialities for development and learning, but they are ordinarily eager to learn if properly motivated. The fruits of union-management cooperation will not be realized unless management takes advantage of these potentialities.

A Willingness to Share Equitably the Gains from Cooperation

Neither management nor union will ever seriously consider the possibility of cooperation unless they expect to gain from it. It is probably unwise to depend too much on the purely philanthropic motives of man. Even the patriotic motives appealed to by the War Production

Board in its campaign for production-drive committees are likely to operate only to the extent that management and workers alike view the war as something very close to home. When the present crisis really is a crisis in their eyes—when they honestly believe that their own efforts can help to prevent a catastrophe—only then will this appeal be an effective one in promoting their joint efforts to cooperate. As of August 1942, one may be permitted to doubt whether this kind of motivation is as yet very widespread.

There are a number of possible gains from union-management cooperation that the worker will recognize as important to *him*. The motives involved can be harnessed to the cooperative effort, however, only if there is a genuine willingness to share equitably the resulting gains.

The first of these gains is the economic one. There is plenty of evidence to suggest that the economic gains can be sizable, but there is not so much evidence of a willingness on management's part to share them equitably. Many suggestion schemes have been set up as a means of stimulating the worker's ideas for the promotion of greater productive efficiency. Even the more liberal of these plans seldom grant the worker an equitable share in the results obtained from his suggestions. Many of them have a top award of $50 or $100, although savings effected through the suggestions submitted sometimes total thousands of dollars per year.

The traditional American philosophy has been individualistic. Consequently, it has been natural for management to seek ways of motivating individuals to be more productive, and to reward the individual for his efforts. During the past decade, however, there has been an increasing emphasis on collective goals. Social security, "share-the-work" plans, union organization, wage and hour legislation—all are *group* rather than individual phenomena. It is actually just as possible to harness motives to group effort as it is to individual effort,[16] although we have only recently begun to recognize the fact in industry.

Union-management cooperation is a group effort. Although effective cooperation is unlikely if the contributions of the individual to the collective effort are ignored entirely, the economic gains can best be shared on a group basis. The economic gains of cooperation do not go to individual members of management. There is no reason for them to go to individual members of the union. Some of the other gains can be shared in a way that rewards the contributions of the individual.

There is a growing realization today that the possibility of economic gain is only one of many reasons that keep the worker (as well as management) on the job. A second highly important motive is the desire for prestige and social recognition. Properly handled, this motive becomes a powerful asset to union-management cooperation. The efforts of both the individual and the group may be rewarded by proper recognition.

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[16] The recent writings of the social anthropologists provide ample evidence. Cf., for example, Margaret Mead, *Cooperation Among Primitive Peoples.* New York: McGraw-Hill Book Company, 1937.

Investigators of the War Production Board, reporting on the experiences of companies that have installed production-drive committees, point out that one of the major obstacles to successful cooperation has been the unwillingness of management to give the union proper credit for its contribution to the joint effort. There is something ironic in the fact that management, traditionally motivated *solely* by the desire for profits, is sometimes loath to share prestige with its own workers. Nevertheless, this unwillingness on the part of management has proved a stumbling block to successful cooperation many times in the past.

Once more, we refer to the factor of management's confidence in its own ability, which was discussed above. The member of management who is not genuinely confident of himself feels that he loses face when his workers gain prestige for having contributed importantly to an increase in productive efficiency. He feels that, since the management of the productive processes is his concern and responsibility, any improvement in them that he has not instituted is essentially a criticism of his own skill. Naturally, then, he is unwilling to see others obtain praise, since he regards that praise as criticism of himself.

One of the outstanding examples of union-management cooperation in the country has been plagued recently by this bugaboo. The remarkable success of this venture has resulted in considerable publicity. Because of the man-bites-dog feature of the situation, the publicity has stressed the contributions of the union to the cooperative effort. In the recent past, management has begun to play down the contributions of the union when discussing the situation with visitors. In this particular instance the problem is probably not a serious one, because the relationship between management and union has become so mature that the issue will undoubtedly be discussed openly and cleared up by both sides before it becomes critical. The example is significant because it illustrates the fact that, even though the economic issue is settled, the problem of sharing the further results of cooperation (prestige in this case) can be a real one, even though union-management relations have reached a remarkable degree of maturity. It is likely to be a much more critical problem in the early stages of cooperation.

The gains from union-management cooperation can be shared with the workers in another important way: in terms of job security. When the Baltimore and Ohio railroad began union-management cöoperation back in 1923, the guarantee by the company that induced the union to try out the plan was one of job security. Certainly, if cooperation is effective, it will strengthen the position of the company competitively and to that extent make possible a greater stabilization of employment and greater guarantees of job security. With the experiences of the past decade still fresh in their minds, this is a matter of considerable importance to workers.

Some well-known instances of union-management cooperation in the steel industry and in the needle trades were begun as a last resort in companies that were about to go out of existence because of financial insecurity. Job security was obviously a fundamental motive in such cases. It has been suggested by some critics that effective union-management cooperation can occur only under such extreme circumstances. It is more probable that these cases represent examples of a sudden maturing of union-management relations brought about by the necessity for surviving a real crisis. The growth process was speeded up materially in these instances. If the course of development had been normal, the stage of union-management cooperation might well have been delayed for several years.

There are other potential gains from union-management cooperation that are somewhat intangible. Chief among these is the interest in the "game" of running the company successfully. There is little doubt that this is a basic motive of management. It can be shared with workers. When it is shared, some of the workers at least will begin to display the same loyalty to the company that is expected of management. The sharing of this interest inevitably narrows the gap between management and union.

Economic gains, prestige, increased job security, and interest in "the game" are all potential consequences of union-management cooperation. Unless there is a genuine willingness to share the results equitably, there will be not only a lack of motivation for the cooperative effort but a real dissatisfaction with the whole relationship. Without a plan for the equitable sharing of results, the idea of cooperation will probably be viewed as an attempt on management's part to bring about a speed-up. The consequence of such suspicion is not cooperation but its antithesis.

UNION SECURITY

When a union is fighting with management for its existence, union-management cooperation is impossible. Its leaders are motivated primarily to get more and more from management through collective bargaining so that they will remain in office and the workers will remain in the union. When the union has achieved some form of security (e.g., a maintenance-of-membership clause, a union shop, or a closed shop), its leaders will no longer have to weigh every move in terms of what their constituents will have to say about it. They can weigh the problems they discuss with management in terms of their real merit rather than in terms of their political significance for the union membership. They can count on time in which to educate their followers and in which to demonstrate the value of long-range rather than short-range goals.

This issue is a difficult one to discuss, because the arguments that are usually advanced contain far more heat than light.[17] Regardless of the merits of the case, there is very little doubt that some form of union security is essential if union-management relations are to develop to full maturity. It may well be that a new formula for union security will be discovered which will be superior to any of those commonly used today. One formula that seems to have been almost entirely ignored is to share the gains of union-management cooperation between the groups that are cooperating, namely, the management (or the owners) and that membership of the union. There is thus provided a genuine motivation for joining the union, and the problems of coercion and freedom of contract are not involved.[18] Union members may be unwilling to expend the effort involved in union-management cooperation if the fruits are to be shared alike with members and non-members.

In general it may be pointed out that union security is normally an issue only during the early stages of the growth of union-management relations. When these relations have reached the stage where cooperation is being seriously considered, and where a fair proportion of the factors mentioned above are present, the question of union security is likely to be settled with very little argument.

MUTUAL UNDERSTANDING

If the reader will look back over the whole list of factors we have discussed, it will be apparent to him that one that has not yet been mentioned specifically runs through all of them as a common thread. This factor is a genuine mutual understanding on the part of the participants in the union-management relationship. Only when this understanding is present is it possible for growth to occur.

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[17] For a well-documented, objective analysis of the issue, cf. J. L. Toner, *The Closed Shop.* Washington, D. C.: American Council on Public Affairs, 1942.

[18] The fact that management is ordinarily unfavorably disposed toward this arrangement indicates that the reasons usually advanced against the union shop are not the basic ones.

Unless management understands the problems of the union leaders that arise as a result of the nature of a union organization, the behavior of the leaders will be viewed with suspicion and sometimes even contempt. Unless the union leaders can acquire a genuine understanding of the authoritative relationships of management and their consequences, they will remain suspicious and antagonistic.

Unless management understands the worker's desires for security, social satisfactions, prestige, and the recognition of personal worth, union-management cooperation will appear to be a utopian idea entirely outside the realm of practicality.

On the other hand, unless the union can acquire a genuine understanding of management's desire for a productive enterprise, many of management's suggestions for improving efficiency and reducing waste will be viewed with suspicion. Unless the union members can acquire an understanding of cost reduction through a knowledge of the problems of their company, there is little point in cooperative effort to improve productive efficiency.

This mutual understanding, which is so essential to the development of labor-management relations, is not a mere intellectual phenomenon. If someone says to you, "I want to explain how this machine works," and then proceeds to show you blueprints and demonstration of the operations of the machine in question, you will end (if he is competent) with an "understanding" of what he is talking about.

On the other hand, suppose someone says to you, "I want you to understand how I felt when I asked the boss for a raise the other day," and then goes on to describe his feelings as he approached the boss, his reaction when he discovered that the boss was in a bad temper because he had just lost a large order to his chief competitor, and his crushing disappointment when the request for a raise was indignantly refused. Whether or not you "understand" in this case depends not upon a mere knowledge of the facts but upon your ability to put yourself into the other fellow's shoes emotionally. This ability to put yourself in the place of the other fellow and to feel as he does is an important means by which tolerance and trust are developed in people who deal with each other day by day.

Union-management meetings are often carried on in an atmosphere of "being logical" or "sticking to the hard facts." When this atmosphere exists, a barrier is raised against the expression of feelings and emotions. The men who insist on logic and facts will almost certainly fail to get "out on the table" the nonlogical opinions and feelings that are important to real understanding. Cooperation under these circumstances is an impossibility.

We have aimed high in this discussion, but we do not believe we have been unrealistic. None of these requirements for union-management cooperation are impractical, although some of them may be difficult to achieve in particular situations at particular times. Instances of really successful cooperation are indeed rare, partly because union-management relations in this country are still generally in the early stages of growth, and partly because most people do not realize the requirements for genuine cooperation. The existence of even a few remarkably mature relationships gives the lie to those who insist that union-management cooperation is but an idealist's pipedream.

There are many union-management combinations that are today, after a normal healthy growth, enjoying a collective bargaining relationship that they would have thought fantastic a few years ago. If they have the patience to accept the inevitable slowness and unevenness of psychological growth, if each side has enough self-confidence to permit a belief in the ability and honesty of the other, and if they have a real understanding not only of the factual but also of the emotional problems involved, they will, over the next few years, make the transition to a relationship whose potentialities have been only dimly perceived: genuine union-management cooperation.

PART FIVE

Understanding Intergroup Behaviour

Haig Chemical Company (A)

Management Analysis Group (MAG)

Ganesh Mills (A)

Exercise : Inter-Group Conflict Resolution

CASES

Haig Chemical Company (A)

THE HAIG CHEMICAL Company had been manufacturing fine chemicals since 1909 in a plant at Baltimore, Maryland. The company purchased raw materials and manufactured them into bulk chemicals for use by pharmaceutical and drug concerns, food and beverage manufacturers, industries and the arts, and by physicians, dentists, and veterinarians. The principal function of the company was a factory processing of chemicals. The plant originally consisted of a single small building, but by 1929 had grown into a large modern plant. The total net sales in 1929 were $8,100,000. Although sales dropped during the depression to $6,210,000 in 1932, by 1938 the figure had risen again to $9,700,000. Exhibit I gives the sales record of the company. New product developments and the war quadrupled sales between 1938 and 1945.

Before 1933 all manufacturing had been organized under an operations department, which was responsible for experimentation and research, process and product development, production methods, and factory operation. All the technical personnel were administered by this department.

This case, Haig Chemical Company (A) EA-A 34-A, was prepared by R. S. Laing, Research Assistant, under the direction of Professor Edmund P. Lecnard of the Harvard University Graduate School of Business Administration, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1948 by the President and Fellows of Harvard College. Used by specific permission.

All names have been disguised.

ORGANIZATION OF RESEARCH DEPARTMENT

The Haig Chemical Company in the early thirties had adopted a policy of expanding its research activities as a means of insuring its long-run growth and the maintenance of its position in the chemical industry. One of the first steps in this program was the organization of a separate research department reporting to the president of the company.

In 1933 the research department had been organized to provide modern facilities for research in organic chemistry, biochemistry, physical and inorganic chemistry, microbiology, process development, and chemical engineering. In the years between 1933 and the beginning of the war large expenditures were made for the expansion of this research program, and modern laboratories were constructed with the latest equipment and manned by high-grade scientists, chemists and technicians. The research activities of this department were closely co-ordinated with government, medical, educational, and scientific societies and agencies throughout the country to exchange ideas and to supplement the work of these various agencies, and the research department soon began to make a substantial contribution to the pure science of chemistry.

EXHIBIT I

HAIG CHEMICAL COMPANY

Year	*Total Net Sales*
	$
1929	8,100,000
1931	7,150,000
1932	6,210,000
1933	7,000,000
1934	7,550,000
1935	8,370,000
1936	9,450,000
1937	10,350,000
1938	9,700,000
1939	13,230,000
1940	15,660,000
1941	25,650,000
1942	28,100,000
1943	37,530,000
1944	37,440,000
1945	37,350,000

In the years following the foundation of the Haig research department its chemists, engineers, and technicians pioneered in the discovery, development, production, and clinical evaluation of a number of new products which represented important advances in medicine, nutrition, and industrial chemistry. Because the demand for these products, especially during the war years, far exceeded the company's ability to produce them, facilities were expanded rapidly, and in 1945 these new products represented nearly 50% of the total sales of the Haig company, whereas in 1938 they had represented only about 1% of the sales. Largely as a result of the development and production of these new items, the sales of the Haig company grew from $9,700,000 in 1938 to $37,530,000 in 1943. Coincident with this growth in sales volume was a rapid and appreciable expansion both in plant facilities and in number of personnel. The research department had become a vital part of the Haig company, contributing appreciably to the growth of the company in sales volume and in prestige.

The research department had originally been given the over-all responsibility for the development of new products and was in charge of a product from the time of its discovery until all the production difficulties had been overcome and the product had been turned over to the factory for manufacturing on a full scale.

The transition between the discovery of a new product by the research department and large-scale factory production of that item represented many steps involving long periods of experimentation, testing, processing, and designing. One executive characterized the number and variety of problems that arose during this period of transition as "absolutely incredible." In the early stages of development in the research department the product was analyzed and tested to determine possible industrial uses, medicinal application, toxicity, and curative powers, after which period production was finally accomplished in test-tube quantities. Before the product left the research laboratories, processes for larger-scale production were formulated.

At this stage also the development division of the research department analyzed the product to determine the advisability of producing it on a large-scale factory basis. Considerations of cost, profit, availability of materials, need for the product by industry or medicine, suitability for plant production, and possible future developments were presented to the president and the management committee[1] by the research director with a recommended course of action.

The Haig company operated on the principle that it was wise to "make all your mistakes on a small scale and your profits on a large scale." When decision to make a product had been reached and the research laboratories had decided on the most suitable manufacturing processes, the item was taken to the pilot plant where production was begun on a small scale. In the pilot plant, the chemical engineers, aided by the chemists who had developed the product, designed and operated a small unit to test the processes for manufacturing the item. Here the processes were revised to fit larger-scale production; mechanical engineers were called in to design machinery and equipment for future factory production; industrial engineers began to lay plans for factory scheduling, layout, packaging, shipping and flow of materials; and construction engineers made arrangements for any necessary expansion of plant facilities. Production in the pilot plant continued until the processes were satisfactory and the factory layout was ready for fullscale production. In some cases an item had been produced in the pilot plant for as long as two years because plant expansion had not been completed, the factory was therefore not ready for full-scale production, and yet there was an urgent need by the government, the armed forces, or civilian medicine for the product, even in quantities produced by the pilot plant.

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[1] The management committee, composed of Mr. Haig; Mr. Towne, the operations vice president; Mr. Ranyard, sales vice president; Mr. Nordly, the treasurer; Mr. Ferguson, the legal officer; and Mr. Richard Robinson, the secretary, was organized for the purpose of making company operating decisions.

With the shift of the production of the item from the pilot plant to the factory came a further period of redesign of equipment and change in process to fit the larger scale of manufacture. The chemical, mechanical, industrial, and construction engineers were all active during this period in efforts to iron out all the wrinkles in the factory process. Even after the process was satisfactory and production completely turned over to the factory staff, research continued on the product and the process to discover other possible derivatives, by-products, substitute raw materials, faster or cheaper methods, and additional applications.

The organization of the research department is shown in Exhibit 2. The department was subdivided into seven divisions: three were involved with pure scientific research; two were concerned with product and process development and chemical engineering; one was a records and information division; and one was a service group for the department.

The three pure research divisions engaged in organic and biochemical, microbiological, and physical and inorganic research involving investigation and experimentation in such fields as toxicology, pharmacology, chemotherapy, therapeutics, microanalysis, entomology, synthesis, nutrition, textile chemistry, and cereal chemistry. These divisions utilized the department's thoroughly equipped laboratories for their research. Each of the three groups was under the supervision of a director who was responsible to Dr. Alvin Dowell, the research director. Senior chemists in each group were in charge of various types of experimentation or of particular product analyses. These senior chemists were all men with college degrees in chemistry or physics, many of them had doctors' degrees, and some had taught the sciences in colleges.

Several top executives of the company characterized the chemists as follows: they were singularly devoted to pure science for science's sake, and research work represented a principal objective in their lives. As a group also, they were disdainful of the money-making applications of science to production and engineering. These chemists were individualistic in their attitudes and in their working techniques, and yet they tended to band together as a group of common interest and to set themselves apart in thinking as well in attitude from the other groups in the company. As individuals, they devoted long hours to the laboratories and were conscientious and untiring in their investigations, becoming so absorbed in their work that they frequently became oblivious of surroundings and other people. A combination of imagination, inspiration, adequate background, and hard work was responsible for their success in research. The senior chemists were responsible to the director of their division, who was in each case a man of long experience with interests and background similar to their own. He commanded their respect principally on the basis of his scientific skill and accomplishments. The research director, Dr. Dowell, was highly thought of by the senior chemists because of his prominence in pure scientific research and the manner in which he had organized the department to provide a high degree of scientific freedom to the chemists. He worked on the theory that the success of the research department could not be measured in daily output but must be considered in the light of months and years of results.

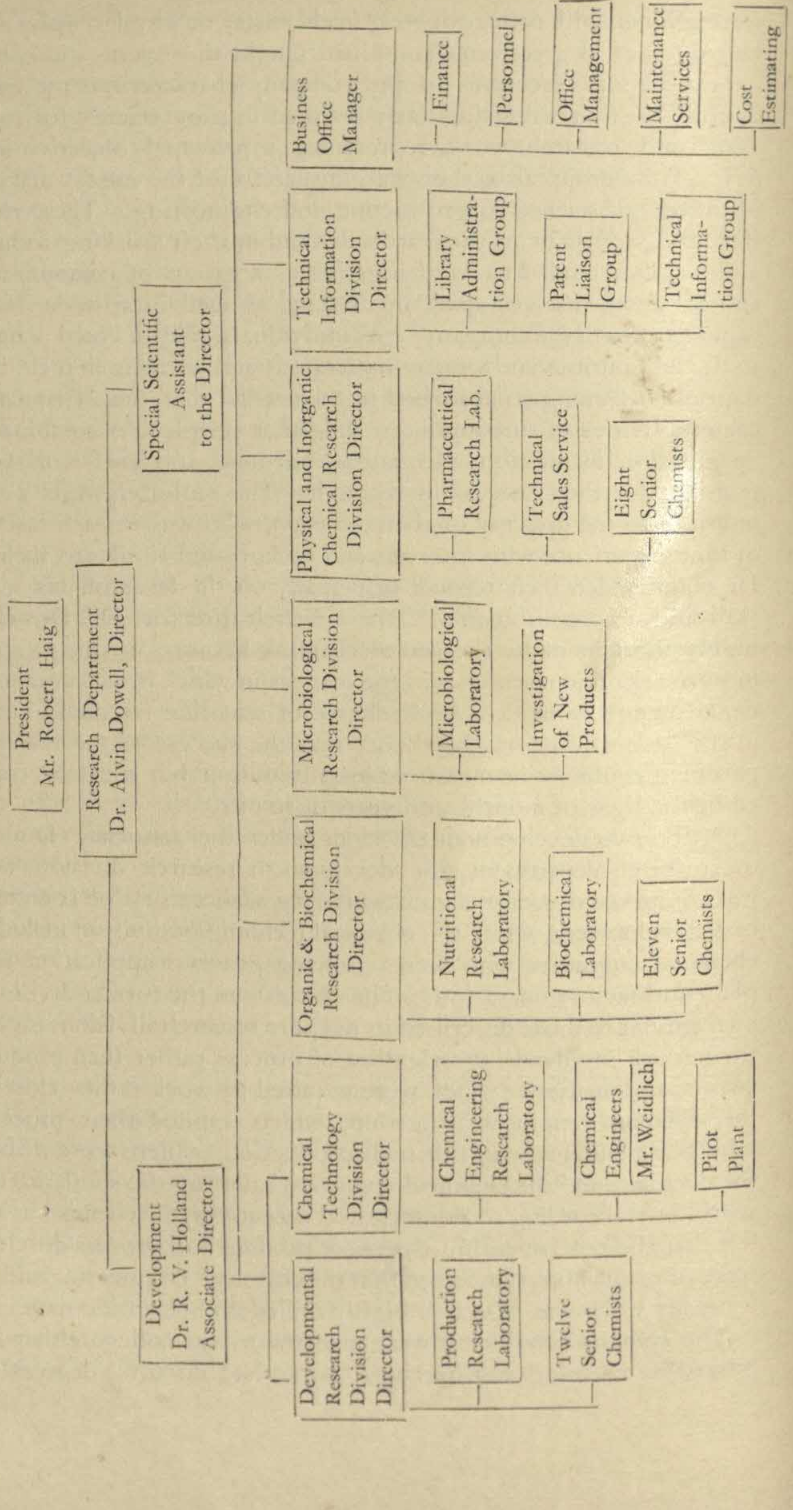
Of the two development divisions under the Associate Director of the research department, the development research division likewise was composed of senior chemists utilizing a laboratory for scientific process development, while the chemical technology division included the chemical engineers who were studying process application to pilot plant and factory operation. The chemists in the former division were men similar to those described in the pure research divisions except that their work involved investigation of process rather than product discovery and analysis. They were required to work rather closely with the chemical engineering group, which applied their processes to pilot plant and finally to full-scale production. There was a tie between the chemists and the chemical engineers based on the similarity of their work, but, according to nontechnical executives, the chemists as a group felt that the pure scientific aspects of product and process development were of prime importance and that the chemical engineering and development work was of a less highly skilled and scientific nature.

The chemical engineers were men trained in college either in chemistry or chemical engineering. Some had doctors' degrees and all

Exhibit 2

HAIG CHEMICAL COMPANY

Research Department



were fundamentally interested in applied chemistry and physics. The function of this group was to work in conjunction with the process chemists, to become familiar with the process, and to streamline it for pilot plant and factory use. Various features were considered by this group, including plant and equipment design, yield rates, rate of production, and scheduling of flow. It was evident to company executives that they respected the senior chemists in the department and were generally tolerant of the group scientific pride felt by the chemists.

In the laboratories, in addition to the senior chemists, were numerous younger chemists and technicians. Most of these were college graduates, who visioned a future in chemistry similar to that enjoyed by the senior chemists. The attitude of devotion to science was prevalent throughout the laboratory groups.

The information and business office divisions were purely service functions for the department, established to provide an ample library, patent information, technical information, and various office and control services.

The research department had been established and developed with large expenditures by the Haig company, and both the executives and the scientific men expressed their view that the facilities for both scientific work and comfortable office space were excellent. The laboratories were spacious, well lighted, well ventilated and strictly modern; the offices and work rooms for chemists and engineers were large, comfortable, and well equipped; the service facilities were many; and the routine was conducive to uninterrupted study and investigation. The top management considered physical conditions for research to be nearly ideal, and the chemists and chemical engineers were obviously well satisfied with the arrangements.

THE ENGINEERING GROUPS

In developing a product from test-tube to full-scale factory production, the research department had the staff assistance of several groups of engineers. In addition to its own chemical engineers, it had the services of mechanical engineers, industrial engineers, maintenance and construction engineers, as well as the factory production staff when needed. These engineers and the factory staff were under the line supervision of Mr. J. E. Towne, the operations vice president of the company.

The mechanical engineers were college-trained men for the most part, with degrees in mechanical engineering. This group was primarily concerned with the design of machinery and equipment for the pilot plant and factory. Upon specifications furnished by the chemical engineers and determined by observation and experiment, the mechanical engineers designed, procured, and installed such items as pumps, cylinders, piping, pressure chambers, heating units, refrigeration units, cranes, pulleys, and the hundreds of other pieces of equipment involved in chemical processing. These engineers were required to work in close conjunction with the chemical engineers who were charged with setting up the process in both pilot plant and factory. The chemical engineers as a group considered the mechanical engineers as a less highly skilled group performing a service function.

The industrial engineers were probably the most heterogeneous of all the engineering groups, largely because industrial engineering is one of the more recently developed and accepted engineering fields. In this group were men, mostly college graduates, who had been trained in mechanical, civil or commercial engineering and in business or economics, as well as men trained only in night school classses. The men in this category were the least specialized, the least technical and perhaps the least important engineering group in so far as new products were concerned. The functions of the industrial engineers consisted of scheduling production, planning flow of materials, providing packaging and shipping facilities, and making time and motion studies. The industrial engineers worked with the chemical engineers to determine the length and type of process, the skills involved, the safety precautions required, the packaging needed, and details for the time and motion study. The industrial engineers contacted the mechanical engineers regarding layout of machinery, speed of operations, and operators required. The industrial engineers similarly worked with maintenance and construction engineers in the design and construction of plant facilities involving the flow of materials and the speed of operation. Company executives believed that the chemical engineers looked upon the industrial engineers as a nonscientific service group instrumental in the details of scheduling and planning. The mechanical and industrial engineers were closely related in background and general interest, and usually agreed readily on matters of machinery layout and operation.

The maintenance and construction engineers were a group of mechanical, civil, and electrical engineers, college trained for the most part, although some were noncollege men who had experience in contracting and construction work. The responsibility of this group was primarily the construction or alteration of plant facilities to accommodate new or revised process and to maintain facilities throughout the plant. When a new process was scheduled for factory operation, the maintenance and construction group in conjunction with the other engineering groups, and in accordance with specifications of the chemical and mechanical engineers, constructed the required machinery foundations, extended the factory, revised ceiling heights, and provided service piping. This engineering group had the lowest percentage of college-trained personnel and had a less vital part in new product procedure than the other groups and was principally involved in plant maintenance, construction, and alteration in accordance with independent specificatons. The chemical engineers, in particular, were not accustomed to working in close conjunction with this group.

The factory production staff was responsible for the actual operation of production processes. This group composed of chemists and some chemical engineers, specialized in the problems of equipment operation and efficient production. They were strictly an operational group and did not assume responsibility for a product until the research department relinquished its control of the products' development and turned it over to the factory. In the initial establishment of a product in the factory, however, the factory staff assigned men to work with the chemical engineers as well as with the mechanical, industrial, and construction engineers, in instituting the process and in learning the details of the operation preparatory to assuming full control of the factory production. The viewpoint of the chemical engineers that chemical perfection in the product and process was essential sometimes proved to be at variance with the practical viewpoint taken by the factory engineers, who held that compromises must be made to adapt the process to factory convenience and scheduling.

ORGANIZATION OF ENGINEERING DEPARTMENTS

Before 1943, there had been no concerted effort to unify all the engineering functions within the company into a centralized engineering department. Each group of engineers, except those in the research department, had reported to the operations vice president. The industrial engineers were a separate group under Mr. T. B. Watson and the mechanical, construction, and maintenance engineers were directed by Mr. R. A. Merrill. Each group had a particular function to perform. Each group usually exhibited a fractional point of view on new product development and there was not so much intergroup understanding as might have been desirable. The management considered, however, that the organization was functioning tolerably well, in view of its rate of change and growth.

As the company grew rapidly and added new products and expanded its plant and personnel, the lack of engineering centralization became more and more noticeable. The increasing scale of operations, the problems of plant expansion, and new products increased the work of the operations vice president in coordination of factory activities. This in turn reduced the time he had for coordination of the work of the engineering groups at the very time when the volume of that work required not only more supervisory attention but possibly some further degree of specialization. The engineering groups continued to work together and with the research department on an informal basis of past practice. The results during the period of rapid expansion were as follows : many instances of duplication of effort, lack of coordination between engineering groups, inadequacies of data and statistics, and waste of time caused by conflicts of responsibility and authority between the engineering groups. Sometimes engineers were assigned to a job for which they were less well qualified than other engineers. For instance, the research department frequently asked mechanical engineers to handle certain projects that might better have been handled by industrial engineers. There was no central control functioning effectively to determine responsibility and authority, to assign jobs, to avoid duplication, to gather data centrally, to centralize engineering facilities, to settle disputes, and to act as an expediting agent in carrying through proper action to conclusion.

An example of the duplication and inconvenience coincident with the noncentralization of engineering facilities was the drafting department. The engineering drafting department was located about one-quarter of a mile from most of the engineering groups in the plant. Some of the groups did their own drafting, to avoid sending prints back and forth to the drafting department; other groups were forced to make it standard practice to send a girl on a bicycle at regular intervals to the drafting department to deliver or pick up drawings and blueprints. Although the inconvenience, annoyance and loss of time to the engineers were obvious, no action had ever been taken to correct the situation.

An excellent example of the errors and inefficiencies occasioned by the lack of centralized control of engineering was illustrated at the time of the construction of a new plant near the existing plant in Baltimore. In the construction of the plant building the chemical engineers had required in their plans and estimates a 14-foot unobstructed overhead clearance. After the building had been constructed, however, it was discovered that service piping required for the floor above had to be placed below the ceiling and thus the unobstructed height was reduced to 10 feet in some locations. This costly error was entirely due to the fact that no central control was placed on the engineering phases of the construction, to check such features and to insure that the chemical engineers and the construction engineers had coordinated their efforts on the design and erection of the building.

Top officials, in addition, referred to the existence of friction between the chemical engineers attached to the research department and the other engineering groups. This friction centered on the question as to which group was more qualified to handle a new product through the pilot plant and the factory. One of the chemical engineers expressed the reaction of the group when he said to one of the factory chemists, "Of course it's a research department job to supervise a new product till the factory methods are straightened out and all the wrinkles are gone from the process. Dr. Dowell is responsible for it up to that point, and we belong to the research department, so we'll keep the job till it's completed and then we'll turn it over to the factory. You factory people don't know anything about research, chemistry, chemical engineering, or the history of the discovery and development of this product. How can you be trusted to make it till we show you how ?" The factory chemist countered by saying, "You research people should stick to your test tubes. Chemists and scientists have no business ever leaving the lab. You certainly don't understand factory operation and that's why we are having so much trouble getting these new items produced. You keep thinking you are in a lab making 20 cc instead of in the factory making thousands of pounds. We know the factory setup. All we need is the process; we'll do the rest !"

In 1943, the company's management committee began discussions on the question of the consolidation of all engineering groups into a single engineering department. Mr. Towne, the operations vice president was particularly active in promoting such a reorganization. Mr. Towne was able to convince the committee and Mr. Haig, on the basis of facts and figures which he presented, that the existing decentralized engineering organization was responsible for numerous duplications and inefficiencies. He suggested that in a $37,000,000 business, engaged primarily in technical production, it was essential that the engineering function be centralized under one leader and unified as to purpose, methods, and controls.

At Mr. Haig's request, Mr. Towne had a study made and a report prepared by several of the principal company engineers which indicated the prevailing weaknesses of the existing engineering organization and proposed changes needed to accomplish engineering unification. This report was submitted by Mr. Towne to Mr. Haig and to the management committee. It provided that all engineering, including chemical engineering now under the research department, should be centralized in a new engineering department under the operations vice president.

When the plan for the proposed engineering department became known throughout the plant there was outspoken opposition from the chemical engineers and a rivalry among the other engineering groups as to which was to play the most prominent part in the proposed engineering department. Mr. Weidlich, head of the chemical engineering group, made his attitude known to Mr. Merrill, the head of the mechanical and construction engineers when he said, "We don't feel that we are nearly as much engineers as we are chemists. Our particular job is new products, and we work as closely as possible with research. By the time these products become factory problems for engineers we are through with them. I can't understand how you figure we could be separated from the research department and still carry along these new products. It just doesn't make sense. I think the rest of the mechanical, industrial, and construction engineers might consolidate within your own department and call it an engineering section, if you want, but I'm certainly opposed to including all chemical engineers in that group because we just don't belong."

Dr. Dowell, director of research, when consulted on the issue by Mr. Haig, the president, expressed himself as opposed to the change involving the chemical engineers. Dr. Dowell explained his attitude when he said, "I've consulted with Dr. Holland, my assistant, and we agree that it is undesirable from our viewpoint to divorce the chemical engineers from our organization as long as we are charged with new-product responsiblity from lab to factory and we must depend so heavily on these engineers for the accomplishment of the job. It's inconceivable to me that such a program would secure results if I were forced to call on another separately run department to accomplish the critical features of a job for which I'm held responsible."

In December, 1943, the Haig company engaged the Garfield Company, management consultants, to study the management and organization problems occasioned by the rapid growth and expansion of the company. One of the first issues facing the consulting firm was the question of the proposed new engineering department. For several months the Garfield Company representatives familiarized themselves with the existing organization, the methods and procedures of research and production, and the inadequacies and deficiencies of the system. Finally, in June, 1944, the firm recommended to management that a consolidation of all engineering functions, including chemical engineering, be effected as soon as practical. The Garfield Company also recommended that an experienced engineer be brought in from the outside to assume the duties of chief engineer.

Although the report of the Garfield Company was similar in most respects to that submitted by Mr. Towne, the management felt that the investigation of the problem by the consultants had been of value. In the first place, management had been able to confirm its own decision on the issue, based on the report by company engineers; and in the second place, the presence of the Garfield Company as well-known consultants had given the question a position of importance throughout the plant and had done much toward convincing the research department and the chemical engineers that action was necessary. Although most of the chemical engineers still opposed the change, the recommendations made by the Garfield Company, as unbiased consultants, partially convinced them on the merit of the contemplated centralization of all the engineering functions.

Mr. Haig agreed to the recommendation that the company hire an outsider as chief engineer. He thought a new man would be able to work more co-operatively with Dr. Dowell, who had opposed the transfer of the chemical engineers. The new chief engineer required experience in chemical, mechanical, industrial maintenance, and construction engineering or a knowledge of how to use these types of engineers effectively. The growth of the company had created a need for a new type of technical chief. The management, not anticipating such rapid growth, had not given its various engineering heads a chance to acquire this broad experience, with the result that the top management doubted the possibilities of promotion from within to the new position. Given a new chief engineer with capacity for leadership, the management believed that any disappointment the old chiefs might feel would be offset in part by the fact that the expansion would give each of them greater responsibilities, a larger volume of work, and larger organizations to supervise. A new man, it was thought, might approach the question of division of responsibility between research and engineering with less bias than an insider.

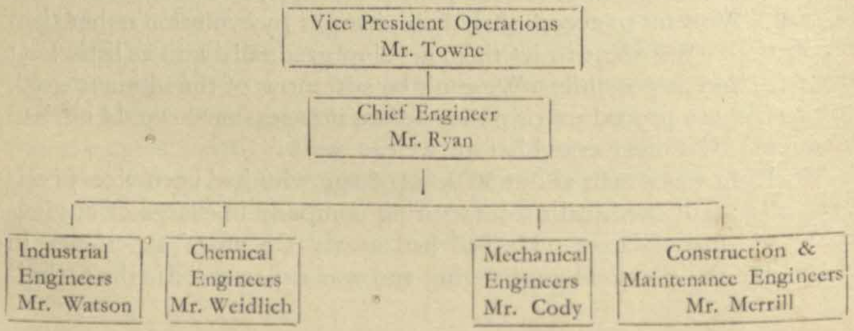
Accordingly, in January, 1945, the Haig company employed Mr. C. P. Ryan as chief engineer and charged him with the responsibility of organizing the engineering department; that is, centralizing all the company's engineering groups and functions, establishing the responsibilities of the engineering department in the company organization, and developing procedures for the satisfactory coordination of the engineering function with the other departments of the company, especially the research department. In accordance with its philosophy of management, the Haig company allowed Mr. Ryan great flexibility and freedom of action in his efforts to establish this department. Mr. Haig instructed him in general on the results desired, but was neither prepared nor did he desire to give Ryan definite responsibilities and courses of action. Mr. Haig stated the company philosophy in a few words when he said, "We want to accomplish these changes by evolution rather than revolution. We want to let them develop gradually with as little heat from friction as possible. We can't be sure now of the ultimate goal, and to freeze a procedure or policy before it is seasoned would be bad business. We must crawl before we can walk."

Mr. Ryan was a man about 50 years of age who had been vice president of a small chemical manufacturing company in charge of engineering and manufacture. He had had nearly 25 years' experience in chemistry and chemical engineering and was experienced in the techniques of chemical production. He was later described by Mr. Watson as "a hard-boiled sort of man who knows his job and who's not an easy man to talk down. He's reasonable and logical, but will never abandon a thing that he believes in. He's exactly the man we've needed for this job, especially since there's been so much opposition to the plan."

Because he was convinced that one of the important steps in centralizing all engineers into a compact organization was to accomplish a physical consolidation of all engineering functions, Mr. Ryan laid plans for moving all Haig engineers, including the chemical engineers, into the same building. In June, 1945, the engineering department moved into the new building, which included desk and office space, drafting and blueprint facilities, an engineering records room for the collection of data and statistics, and a conference room.

There were minor problems of adjustments to the new space setup. Mr. Watson, who as head of the industrial engineers was in charge of planning and laying out the new engineering department office, had planned to avoid the use of cubicles for individual offices. Although the use of glassed-in cubicles was prevalent in the other company office buildings, Mr. Watson thought them a waste of limited space, and, in addition, he believed that more work could be accomplished in an engineering office without the obstacles to informal communication presented by glassed-in offices. Previously, the chemical engineers had enjoyed unusually good office space in the research buildings, and the loss of these physical comforts had been one of their objections to the move. The question of individual offices was under discussion for several weeks; Mr. Watson explained to Mr. Weidlich, the head chemical engineer, that the limited available floor space would not permit all the engineers to have enclosed offices. Ultimately, however, he decided in order to promote harmony to give the chemical engineers their offices, even though the remainder of the engineers would have none.

In planning the engineering department Mr. Ryan adopted the following organizational setup :



To accomplish this change, he had to break up the previous combination of the mechanical, construction and maintenance engineers who had all worked under Mr. Merrill. In the new organization Mr. Merrill kept the construction and maintenance engineers and his former assistant, Mr. Cody, took charge of the mechanical engineers. Mr. Merrill did not receive this step favorably. He had been with the Haig company for nearly 20 years, he had actually hoped for the position of chief engineer, and he had been none too pleased with the introduction of Mr. Ryan as the chief engineer. Mr. Merrill, a self-made man, with very little formal education, had shown himself very capable in his operation of the mechanical, construction, and maintenance groups. Mr. Towne and Mr. Haig had not selected him for the position of chief engineer primarily because his background was limited and included very little chemical or industrial engineering.

After Mr. Ryan had accomplished the physical consolidation of the engineers and had defined the departmental organization as shown by the chart below, he set about to establish yardsticks for appraisal of results, to provide incentives for outstanding work, to institute informal channels of communication, and personally and forcefully to present the viewpoint of the combined engineering groups in any company discussions involving engineers. He held numerous dinner meetings at a Baltimore hotel, at which time the entire engineering force, under pleasant social surroundings, was able to discuss departmental engineering issues. Mr. Ryan made daily efforts to become familiar with his engineers, with the plant and its procedures, with key men in the research department and in the factory, and with the situations which arose causing confusion and conflict.

Mr. Ryan made a particular effort to reach close understanding with his four engineering group heads. He planned frequent conferences with Watson, Weidlich, Cody, and Merrill, in which they discussed in detail the problems that arose in their work, the areas which had formerly produced disagreement, the best procedures to follow, and other points involving the engineering department. In addition, Mr. Ryan dropped in to see these men at irregular intervals to discuss informally some phase of the department's operation. Mr. Ryan took the four men into his confidence on matters involving the department, particularly where departmental policy in regard to relations with other departments was concerned. In all these discussions, Mr. Ryan proved himself receptive to the ideas and opinions of the other engineers and was forceful in following up, outside the department, the decisions reached in conference within the department. By giving wide distribution to any letters, publications, or memoranda involving the department he hoped to develop interest by all engineers in departmental activities. He made it clear by memoranda that achievement by engineers would be recognized within the department and made the basis for promotion, salary raises, and company recognition. Through his group leaders he attempted to establish yardsticks for appraisal of results by clarifying the particular functions of each group and the basis for satisfactory performance. The group leaders were to assign engineers to particular projects and to follow up their efforts in carrying out the details of the project.

During this readjustment period Mr. Ryan made special efforts to reach an understanding with Dr. Dowell on matters of responsibility, coordination, and authority between the two departments. The two men spent considerable time together in office meetings in the pilot plant and in the factory, discussing ways and means of placing new-product development on a smooth functioning basis. At many of these discussions, Watson, Weidlich, Cody, Merrill, certain research department personnel, and various engineers were present. As problems arose that were difficult to settle on the spot, the engineers and chemists involved sometimes familiarized Dr. Dowell, Dr. Holland, and Mr. Ryan with the problem so that it might be settled by the formulation of a principle that would apply to other similar instances.

Dr. Dowell maintained responsibility for new products until they were being produced without difficulty in the factory. Mr. Ryan considered it the responsibility of his own department to provide all the functional services required by the research group. That is, the chemical engineers were to work in conjunction with the chemists on process and pilot plant operation; the mechanical engineers were to furnish all the machinery and equipment for pilot plant and factory operation; the industrial engineers were to take responsibility for all scheduling, time study, packaging and shipping; the construction and maintenance engineers were to provide plant space and plant layout for the process; and finally, the engineering department was to coordinate these engineering functions to provide maximum control, minimum duplication, and the greatest possible effectiveness in aiding the research department to place a new item in quantity production.

Although Dr. Dowell held the responsibility for new products, Mr. Ryan, as chief engineer, possessed in effect a power of veto over any step in the process which he felt was inadvisable from an engineering point of view. For instance, if the research department decided to install a process involving equipment and machinery which did not meet with the chief engineer's approval, for reasons of design, cost or availability, Mr. Ryan discussed his objection with Dr. Dowell, attempted to reach an agreement, and, if necessary, took the problem to the management committee for decision.

As time passed, it became evident that the engineers were all working together under one roof, were beginning to understand the attitudes of the other groups, and were responsible to one authority, Mr. Ryan, who was responsible for their promotions and recognition as well as for their activity. This caused a noticeable decrease in the friction which had existed. The chemical engineers became accustomed to their new surroundings, although they continued to spend a considerable amount of time in the research department, particularly with the development chemists. They discovered that the move had not appreciably changed their relationships with the chemists and the research department. The chemical engineers developed individual friendships with men in the mechanical, industrial, and maintenance and construction groups, and found it easier to communicate informally with these groups. It became a common sight in the engineering office as well as in the pilot plant and factory, to see members of several engineering groups discussing, informally, problems, relating to certain features of a new product's development. Early in 1946, Mr. Weidlich, the head of the chemical engineers, who had so opposed the consolidation move, said to Mr. Merrill, "Bob, I'm actually surprised at how well this department is working out. It may be OK after all, and we are beginning to enjoy it here. There's no doubt that we are getting along better, and certainly it's easy to see an improvement in the procedure on new products. Hope we didn't give too much trouble in the beginning."

At the same time an increased smoothness was noticeable in the manner in which the groups carried out their functions in the pilot plant and in the factory. Mr. Weidlich and his chemical engineers became more familiar with the other engineering personnel and were better able to call on the right group for assistance and to explain what was required. The chemical engineers dominated the pilot plant because of their knowledge of the process, but came to rely on the mechanical engineers, particularly for consultation on machinery design. Although Dr. Dowell and the research department still held the official responsibility for the product from beginning to end, the engineering groups actually took charge during the pilot plant and factory stages, and the research people began to serve mainly in an advisory capacity on the chemical aspects of the process.

RESPONSIBILITY OF ENGINEERING AND RESEARCH

By June, 1946, there had been no formal change in the responsibility of the research department for development of products from test-tube to full-scale factory production. The topic was being discussed, however by engineers and by research personnel. Some of the engineers seemed to feel that the new engineering department should take over formally at pilot plant stage whereas the research men could see no reason why they should give up a responsibility that had been theirs since 1933 and without which they might not be fully capable of developing products and processes in accordance with their ideal standard. Since the volume of research work had increased so much and was of such great importance to the company, it was a moot question in the minds of many whether once again growth required a reshuffle of responsibilities. More specifically, the question was how responsibility for product development should be divided between research, engineering, and the factory production staff. The views of several people regarding this question follow.

Under the operational scheme visualized by the engineers the new product development would be generally as follows: When the research lab discovered a new product and had conducted sufficient preliminary research to justify study of the item and process from a production point of view, the chemical engineers would begin to work with research chemists and familiarized themselves with the process. When decision was made to go ahead with production, the chemical engineers would make arrangements to institute the product in the pilot plant, and the mechanical and industrial engineers could assist where necessary. When the pilot plant operation was ready, the chemical engineers and chemists would jointly set the process in operation, but at this point the responsibility would shift because the major portion of the work load shifted from research to engineering. The chemists assigned by research to the project would continue to work with the chemical engineers. As the pilot plant operations became smooth and the product prepared for the factory, the research chemists would have less and less to do and could be reassigned by the research department, with the understanding that they were available for consultation on any problems that might arise on the later development of the problem.

The foregoing viewpoint was not shared generally by the research department. The research department had felt the pressure by the engineering department ever since its organization particularly as the engineering department increased in scope and effectiveness and bore more and more of the burden of carrying along the new product. Mr. Burnett, one of the research department division heads, explained his attitude by saying: "It's my opinion that research on a product discovered and developed in our research labs and destined for production in our factory is not completed until all the kinks are taken out of the factory process. To say that research is over when the product leaves the lab is ridiculous. The only reason the item leaves the lab is that we feel better equipped to carry out the advanced stages of the research in the pilot plant and factory. Our job is more than the discovery of the product and the formula; it is, in addition, the discovery of the best means of processing it. That is a job for a trained chemist, especially for the chemist who did the primary research on the product.

"We recognize the contribution of the engineers to the production processes, but the building of machinery and equipment, and the scheduling of work are only aids to the principal job of learning the most efficient way to produce the item. When we know these things, then it will be time for factory engineers to streamline their equipment and procedure for producing the item by the process that we've determined is most favorable. If, as is proposed, we turn a product over to the engineers when it leaves the test-tube stage in the lab, I'm afraid that research on the product will be cut short, and although the speed of putting the item into full production may be increased, the final product and the final process will be inferior to what would be obtained if research were allowed to finish its job.

"Ever since the chemical engineers were transferred from research to the engineering department, we have experienced difficulty in coordinating the various groups involved in the several phases of new product development under Dr. Dowell. For instance, there has been noticeable a tendency on the part of the factory chemists to resist late changes in process, as suggested by the research chemists, after the manufacturing processes have been designed. We in research feel that we must have the privilege of improving product and process at any time during its development, particularly until the actual factory yield reaches the theoretical yield. This company has a splendid reputation now for research and the development of fine chemicals and drugs; we are establishing our name for quality products; and we are making a substantial contribution to medicine, science, and industry. To continue this progress we must insure that our products are as good as modern science can make them. That responsibility can be borne only by our research department and by our chemists and scientists. To deprive them of full responsibility for a new product until they are satisfied that it is as good as their facilities at present will make it, would be to endanger the control over quality, which is the basis for our success."

Management Analysis Group (MAG)

PART I

INTRODUCTION

THE NATURAL RESOURCES COMMISSION (NRC) is a policy making body and consists of three members. The policies of the Commission are implemented through the Department of Natural Resources (DNR). The Chairman of the Commission is also the Secretary of the DNR. The major constituent units of the DNR are a Research Centre for National Resources (RCNR), a research and development organisation comprising of about 4000 scientists; the Minerals Division; 4 industrial enterprises; and an Experimental Deep Sea Station, an undertaking recently started with the assistance of the United Nations. The partial organisation structure of the DNR and some of its constituent units is given in Chart I.

Most of the key positions in the Department of Natural Resources (DNR) are occupied by the members of the administrative cadres of the Indian Government—Indian Administrative Service, Indian Foreign Service, and Indian Audit and Accounts Service. The Research Centre for Natural Resources (RCNR) is manned largely by scientists and

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This case, Management Analysis Group (MAG), was prepared by Professor Kamla Chowdhry as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1970 Indian Institute of Management, Ahmedabad. Used by specific permission.

technologists. Many of the constituent units of DNR, such as the minerals division and the industrial enterprises, which have emerged from the research work of scientists in RCNR are manned by scientists from RCNR, members from the administrative cadres of the DNR, and through outside recruitment. The "working culture" of RCNR is that of Research and Development, of DNR that of government administration, while the constituent units are akin to other commercial enterprises.

A little over two years ago the Chairman of the Natural Resources Commission felt the need of some specialist studies, especially in economic analysis and organisational planning, to supplement the technical reports on new projects, which were emerging from the research and development work of the RCNR. The project reports on the proposed industrial schemes required specialists who could provide the planning and management functions relevant to these projects.

In 1967, the Department recruited two persons, one an economist and the other a fresh MBA to help conduct some of these special studies. After a year four more were recruited, three MBAs and an engineer. All the persons recruited were young, fresh from educational institutions and with good academic records. After two years one of the MBA's left to pursue further studies at MIT, and another resigned to join a private sector organisation as an Operations Research specialist.

In the beginning, these persons worked in an administrative framework which was largely unstructured. The work was generally assigned by the Chairman of the NRC as he felt the need of special studies to be undertaken. But as other large projects were considered by the Commission, some of these specialists were asked to become members of project teams, where they had to work along with other senior scientists, technologists and administrators.

In order to give an identity to the new members, the Group was named the Management Analysis Group (MAG) to emphasise the function of analysis. The background of the members and some of the programmes with which they were associated are given below:

Name	*Qualifications*	*Projects*
Ajay	Economist 32 years	Minerals Development Programme. National Deep Sea Station Project. Committee on Science and Technology.
Prakash	MBA 23 years	Systems Planning for Power. National Deep Sea Station Project. (RESIGNED)
Krishnan	MBA 23 years	Natural Gas Project. Project Hard Rock.
Singh	Elec. Engg. 24 years	Systems Planning for Power. National Deep Sea Station Project.
Ganesh	MBA 23-24 years	Project Hard Rock.

Over the year, the Chairman received several complaints from these MAG members about bureaucractic procedures of the Department, and from the administrators, about the special privileges demanded by the MAG members and their rude behaviour.

Although the MAG unit has a current membership of 4 persons, there are, in fact, only two fullfledged members, for Ajay, over the last year or so, has been working almost full time on the Minerals Development Committee, and Krishnan has been working full time on the National Deep Sea Project located at Neelima.

In July 1969, the members of the MAG submitted a memorandum to the Chairman, NRC, given in Appendix 1, and sought an opportunity to discuss the memorandum with him away from the many interruptions of the office. The meeting was held in the Chairman's home and lasted over two hours. In describing the meeting, the Chairman said that the members were concerned about their salary, and about their future career; that they had asked for air-conditioners in their offices, a facility provided to only the senior people in the Department; and that they considered themselves as a special unit working only for the Chairman. He was worried about the Group, since he had visualised using these persons as staff analysts and staff consultants for ongoing and contemplated programmes in the areas of work allocated to the Department of Natural Resources. The Chairman invited the case writer to help him sort out the organisational and administrative procedures related to the MAG.

The Chairman then called a meeting of the MAG members to introduce the case writer, saying that since they were all actors in the play, a professional detailed study of the issues involved would be helpful to him. "There are", he said, "symptomatic problems and basic issues and these need to be clarified". The case writer subsequently met and discussed the problem with three members of the MAG, three members of the administrative services of the Department of Natural Resources, and one scientist project leader. The following pages describe some of the concerns expressed by the two groups.

MAG MEMBERS

The material in this section reflects largely the attitudes and experiences of the two MBAs. (The third person interviewed was the engineer, a quiet person who indicated that he was happy with his work and had no problems.) Since the MAG members have no seniors in their own specialisations within the Group, they have to work largely on their own. The work was held to be challenging and interesting. They realised that such opportunities would not be available elsewhere and that the personal development that took place was enormous.

They mentioned that in their work they have to interact with senior persons mostly at the Director level. Thus, Ganesh in his interview said: "I was told by the other MBAs that I shall have opportunity of applying new techniques, of moving with important people, and of working on important projects for the country."

To give some idea of the scope of the projects they were asked to study, Ganesh gave an example of the work he did in the Project Hard Rock. This is a large project dealing with power and water needs in an area in Rajasthan. The investment in this project is likely to be of Rs. 400 to Rs. 500 crores. Ganesh was asked to prepare the planning of the organisational aspects, and some studies of economic analysis for the project, soon after he graduated and joined the MAG. The size of the project and the responsibility involved unnerved him somewhat in the beginning, but he was proud of the fact that he had contributed to two chapters of the project report. Ganesh worked for about 3 months on the project. Most of the assignments of MAG members are of a short term duration.

In discussing the organisational set-up they said that though technically they were employees of the DNR, they are, in fact, really a unit of the Commission reporting directly to the Chairman. The fact of working directly for the Chairman seemed of considerable significance to them—"We work for the Chairman. He assigns us the projects and we report directly to him."

The MAG members described their work as assisting the Chairman in policy making. They said that the rigid administrative set-up of the Department was not conducive to the innovative work they were doing. They mentioned that if they were to work through the regular administrative set-up of the Department, things would be inordinately delayed and the work of the project would suffer. They said their work frequently required travel over long distances, and the Department did not seem to consider their travel request by air sympathetically. They argued that travelling by train meant a waste of two to three days, and that when they arrived at their destination, they were tired for the meetings. The MAG members felt that the administrators really did not understand their problems and their needs. An example mentioned by Krishnan related to their requirements of a good library. "We have to get sanction for each book from the administrative officer concerned", he said. Other opinions expressed about the administrators were : "They are paper-pushers; used to straight-jacket procedures; and concerned with status and hierarchy." At the same time they expressed the belief that there was no serious problem of relationships or of conflicts with the administrators.

The MAG members were appointed on the senior scientific scale operating in the Research Centre for Natural Resources, not on the salary scales of the Department of Natural Resources. Although they were not dissatisfied with their emoluments, they were concerned about their future prospects. They mentioned that although in the initial stages the gap between what they received and 'others' in industry was small, this gap in five years time would be of considerable size because the Department gave only regular increments. Krishnan expressed the point of view that perhaps in five years time his market value in the industry might not be of the same order as others who had direct experience in industry. He was, therefore, considering moving out to private industry after some time.

DNR MEMBERS

A senior member of the administrative cadre of the DNR said regarding the work of the MAG members: "It would be useful from the point of view of their work also if they maintained good relations with the Department. After all there is considerable information which is not documented in the files and this information would be only available in terms of informal relationships. Even after being referred to the right files they could get a great deal of helpful information from us. But if they come demanding co-operation, they are not likely to get very far. They use the name of the Chairman for getting information. But if they come with an attitude of demanding information they are likely to receive merely a formal statement."

It was mentioned that the MAG members work upstairs and have isolated themselves, that they have no rapport with the members of the Department, and that this isolation detracts from their usefulness.

One of them mentioned that "off and on they (MAG members) say that the perquisites are not satisfactory, that they require air travel to Delhi and sometimes even to Ahmedabad, and that they need air-conditioners in their offices. They tell us that the Chairman has sanctioned air travel but we have no way of knowing this. Some of them seem to be overly sensitive about their rights. After all when we go to Delhi we only get the Government D.A. and T. A. and are very often out of pocket. These people demand much more. If they are to be a part of the Department we cannot have a separate set of rules and regulations for them."

It was indicated that the MAG members seemed to think that they should get whatever they demand and whenever they demand. The Department people felt that the MAG members went around with a chip on their shoulder. In the Department, everyone understands what an Under Secretary or a Deputy Secretary means. But nobody understands what a Staff Analyst is.

Another member of the DNR said that nobody seems to have any notion as to under whom they are working. Thus, in the recent chart, they are shown under the Secretary, NRC, and yet he knows nothing about their work. Nobody is worried about their reporting to the Chairman directly, but the Chairman is a very busy person and should not be involved in the administrative details of the MAG. Another said, "I do not think it is corrct even in technical aspects their reporting to the Chairman. He may assign work but administratively this arrangement is not at all feasible."

According to another administrator, one or two of the MAG members have alienated some of the Department people by the way they have behaved by writing "immature notes". He however added that in fact most of them are nice people and he believed that the present problems could be sorted out.

In considering future recruitment from the professional institutes of management, the general opinion was that although the boys were bright, they were arrogant in their approach and behaviour and had difficulty in adapting to the Department.

PROJECT LEADER

The Project Leader interviewed was in charge of the Project Hard Rock, a senior scientist from the Research Centre for Natural Resources. He mentioned that besides the technical feasibility studies, the report must contain suggestions for resources and their availability, and something about the organisational direction of the project.

He mentioned that a staff analyst had worked part-time on his project. He, however, believed that the requirements of the project were not for part-time people on a short term basis but for full-time persons, who could work in a more detailed fashion the organisational and economic analysis aspects. He also said that it would be useful if the staff analysts had wider experience.

The project leader discussed with the case writer the availability of getting full-time persons with greater experience for such projects. On being told that such persons were difficult to find he wondered whether he could get at least some 'guidance' in such matters.

Regarding the administrators in the Department, the project leader described an "incident" wherein he indicated how things got delayed by the administrators. He mentioned that the Chairman had written to the World Bank to get some full-time technical and financial help regarding a project. However, when a letter was received from the World Bank and a reply had to be sent, the letter could not be located for weeks in the Department. He said, "I just felt utterly fed up." He indicated that organisationally and administratively something should be done about expediting projects.

PART II

The Management Analysis Group (MAG) members were showing great impatience about decisions concerning the organisational and administrative aspects relating to their group. Since the Chairman was going abroad for a month, he asked the MAG group members to prepare a document "defining the organisational framework and administrative practices," which could be considered on his return. While the Chairman was away, the MAG group circulated a document to the senior members of the DNR, a copy of the document is given in Annexure A. The document was forwarded with the following note :

> At the time the Chairman left for the current overseas visit, he was keen that we should prepare a document defining the organisational framework and administrative practices of the Management Analysis Group to be considered soon after his return. Such a document has now been prepared and enclosed. We felt that it would be valuable if you could comment in detail on the points we have made so that the views of the Department as a whole would be available by the time the Chairman returns. We look forward, therefore, to receiving your comments at an early date.
>
> No comments were received.

On the day the Chairman returned, October 9, 1969, the MAG members asked for an urgent appointment to discuss their document.

A meetng with the MAG members was held on October 10, 1969. After the meeting, one of the MAG members wrote to the case writer, enclosing a copy of the document "Decisions emerged at the meeting on October 10, 1969, about the Management Analysis Group." The decisions arrived at in the abovementioned meeting are given below:

1. The Management Analysis Group (MAG) will be located in the Natural Resources Commission.
2. This Group is intended to serve the entire DNR family as a Resources Group in the fields of management, social science and policy planning. All units of the DNR can draw upon the Group's resources for assistance in the Commission's programmes. Chairman's concurrence will be obtained in all the cases.
3. The Chairman will normally assign tasks to the members of this Group. The members may also initiate relevant studies with the approval of the Chairman.
4. The members of the Group have two kinds of tasks :
   (a) Special studies in their staff capacity; and
   (b) Executive roles with line responsibility.

For tasks (a), members will operate from the Group. For tasks(b), members will be seconded to different units by the Chairman. During the seconding period, however, the personnel policies governing them (like promotion, etc.) willbe the MAG rules. Such members will come back to the parent Group once their tasks are accomplished.

5. The need for "openness" in evaluation of the members of this Group was recognised. Hence, it is desirable that the evaluation should not be closed or confidential. There must be *explicit* feed-back on each task to the members on their performance by their superiors. Such feed-back could take the form of mutual discussion.

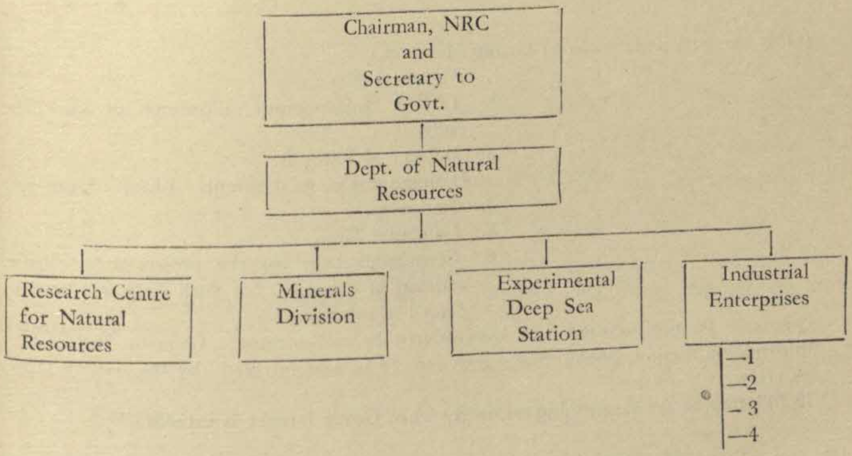
Other matters relating to the MAG will be decided upon in the subsequent meetings.

QUESTIONS

1. What is your diagnosis about the conflict between MAG and the DNR members?
2. What organisational set-up would you recommend?
3. What administrative procedures would you apply to this Group?

Chart I

A Partial Chart of the Department of Natural Resources



APPENDIX I

AGENDA FOR THE MAG MEETING
ON AUGUST 1, 1969

I. *Facilities*

1. Office accommodation : Airconditioned rooms. Three in the existing rooms (air-conditioned) or two rooms airconditioned.
2. Secretarial support : One Information Assistant for the Group (Science Graduate with Librarian Diploma in the Grade of Rs. 210-530.)
   Peon for the Group.
3. Office equipment : Filing Cabinets.
   Cupboards.
   Intercom.

II. *Group Budget*

(Only for work undertaken by Group Members.)

1. Air travel
2. TA/DA Contingency allowance of Rs. 15/- daily.
3. Books and Journals.
   (Foreign exchange through RCNR Library)
4. Stationery.
5. Computer Time.
6. Consultants help for the project work (Prior estimate of expenses for such help will be included in the budget.)

Quarterly budget prepared and administered by each-member. Common budget for Information Section, Books, Stationery, etc., to be administered by the Group collectively.

JS (V) may be the sanctioning authority when Group budget is exceeded.

III. *Group's Objective and Organisation*

1. Name of the Group (MAG)

2. Designation of Members. (No designation required)
3. Standing Order

IV. *Functioning as a Group*

1. Saturday meetings
2. Interdependency in project work.

V. *Internal Relations*

Role and status of the Group, vis-a-vis Civil servants and Scientists in DNR units.
Source of authority and sanctions behind the Group when they ask for information and co-operation.
No member of the civil service can exercise administrative or substantive control or co-ordination over the activities of the Group.
The MAG will be shown under Chairman, NRC and in the organisational chart for allocation of duties.
This arrangement is to be concretised by the Standing Order.

VI. *Criteria for the Evaluation of the Group*

Periodicity of evaluation—Annual.
Who evaluates ?—Chairman.
Career advancement and incentives/motivation.
Perquisites like housing accommodation, etc.

ANNEXTURE 'A'

ON THE MANAGEMENT ANALYSIS GROUP

As of April 1, 1969, the Management Analysis Group (MAG) has been formed as a unit of the Natural Resources Commission (MRC). At present, the Group consists of the following members :

1. Ajay
2. Krishnan
3. Singh
4. Ganesh.

This note is concerned with defining the organisational framework and administrative practices which would determine the activities of the Group.

1. *The Raison d'etre*

The Natural Resources Commission has been characterised in the past by its constant sensitivity to the need for generating new organisational forms and administrative practices. These have been designed so as to maximise the pace and quality of the Natural Resources programme and the Commission has felt such a goal to be paramount enough to warrant, where necessary, significant departures from the administrative, financial and personnel practices, normally applied to Government agencies. What is more, it has also not hesitated to modify its own procedures and norms so as to keep them in step with changes in the character and emphasis of its activities.

It was thus only natural that the NRC should have been perhaps the first major government agency to recognise, a few years ago, the need for social science and managerial skills in the development of its future programmes. The scientists who are now members of the Management Analysis Group were recruited into the Secretariat of the Department of Natural Resources as a tangible expression of this recognition. However, their experiences in the course of the last year and a half have revealed that

(*i*) working as individuals has meant losing the many tangible and intangible advantages of a formally constituted group, the most important being, perhaps, that consciously felt group identity, so necessary for group effectiveness.

(*ii*) many of the administrative practices of the Secretariate of the Department of Natural Resources were not appropriate to the nature of the tasks assigned to the Group members.

Since the NRC is the supreme policy making body on matters allocated to the DNR, the members of the Group visualise their roles as primarily one of assisting in this policy making function. The experiences of the members of the Group have given considerable ground for concluding that their skills and approaches are highly relevant to a wide range of planning and managerial responsibilities which the Commission would be facing in the near future. The problems of nuclear power planning, scientific and technical manpower forecasting, design and initiation of R & D management practices, participation in the formulation of policy options on the scientific, commercial and political implications of foreign policy issues involving atomic energy, space, electronics, etc., might be cited as a few examples. If the Group is to play such a role, it will need initiative, maturity, mobility, contacts with other professionals, and an imaginative exercise of responsibilities. All this can best be realised within the self-regulating framework for the Group's operations. However, past experience and future potential suggest that the practices and procedures of the DNR which have been applied so far to natural scientists and engineers on the one hand and administrative personnel on the other, are not *wholly* appropriate to the performance of such a role. As a consequence, it has become necessary to formulate a modified set of practices and organisational arrangements which are set out below. These are expected to evolve over a period of time and what is attempted here is not complete enumeration, but indicative formulation.

2. *Recruitment*

The members of the Group will be selected by the Chairman.

3. *Reporting Responsibility*

The members of the Group will directly report to the Chairman, NRC, who will assign the Group members tasks of analytical, evaluatory or promotional nature related to various on-going programmes of the Commission.

4. *Relationship vis-a-vis Other Units of DNR*

Since the Group has the sanction of the Chairman's authority in the execution of its tasks, it is expected that the other units of the Department will extend active co-operation to members of the Group in their undertaking these tasks. This is particularly important in regard to the provision of data and information on matters which the members deem relevant to the performance of the task assigned to them.

The members of the Group will also be available for consultation by both scientists and administrators in various assignments. In such cases, requests for their participation should be addressed to the member(s) of the Group concerned who would obtain the necessary permission from Chairman.

5. (*a*) *Evaluation*

The basis of evaluation of a member's performance will be an Annual Review. The review should not be confidential or closed, as it is now, but must be "open", i.e. must be discussed between the MAG member concerned and the Chairman Project leader et al. Such open evaluation is necessary for the growth of the Group members in both a personal and professional sense. Closed evaluations do not achieve this purpose and create a strain in the relationship involved. Openness encourages closer ties and mutual trust which are absolutely essential for members of this group.

(*b*) *Annual Review*

(*i*) In cases where the members of the Group work as a part of a team involving scientists, engineers and/or administrators, the Project team leader concerned will prepare an evaluation report. These reports are to be annually or at the end of the project whichever is earlier, and sent to the Chairman, NRC.

(*ii*) Chairman will, on the basis of these reports, and on his own assessment, make an overall evaluation of the performance of each member for the year concerned.

6. *Pay Scales and Progress*

While it is recognised that the scales on which the members of the Group are appointed offer some administrative conveniences, they are not to necessarily indicate the kind of progress Group members will make over the years. The Annual Review will be the basis on which an individual's progress will be determined. Chairman will decide on the basis of the Annual Review

(*i*) Whether there should be any increment at all;

(*ii*) If so, how many increments should be given; and

(*iii*) Whether any shift in grades is called for.

The rationale for this departure from RCNR rules is that it is important that the MAG must be able to attract bright young people, skilled in managerial and social science disciplines. In the competitive market for such people today, the compensation is very high. Consequently, to attract and retain such personnel, the Commission must be able to pay competitive salaries and provide facilities for rapid growth. This is precisely the reason why the principle of time-scale has not been applied to career development. Even an annual increment, which is normally automatic, should be withheld if a person's perfromance is not satisfactory. On the other hand, the possibilities of frequent multiple increments or shift to the next higher scale should be feasible depending on the performance.

7. *Other Personnel Rules*

Other RCNR rules relating to personnel will apply to this Group so long as they do not contradict the provisions mentioned in the note earlier. This, however, does not preclude changing and evolving new rules in the furture with reference to other matters.

8. *Group Budget*

The Group budget will consist of (apart from remuneration, etc.)

(*a*) Quarterly travel budgets for individual members;

(*b*) Common Service Budget covering such items as Information Assistant, Stationery, Library, etc.

(*a*) *Travel Budget for Individual Members*

The members of the Group need to travel a great deal to different parts of the country and it is necessary to undertake this travel without any loss of time, efficiency or physical energy. They should be entitled to travel by air to all the places where air connections are available. In other cases, they will travel by first class in trains.

Incidentals during travel admissible to the Group members will include

(*i*) Expenses on taxi fares for internal travel within the city/town visited, telephone calls, telegrams, etc. on actuals.,

(*ii*) 1/5th of the air fare subject to a maximum of Rs. 30/- as incidentals. In case of surface travel at the rate of 6 paise per Km of the distance travelled by train and 30 paise per Km from the railway station to the place of halt and back; and

(*iii*) halting allowance of Rs. 20/- for every 24 hours spent outside headquarters.

Each member will prepare a firm budget for three months covering travel, incidentals, etc., and submit it to the Chairman for his approval every quarter. If these budgets are actually exceeded, Secretary, NRC will have the power to approve further travels by air on a case-by-case basis.

Expenses on internal travel within headquarters will be reimbursed on the basis of actuals.

(*b*) *Common Service Budget*

The Common Service Budget (CSB) will be administered by Group members in a collective manner. This will have to be prepared and approved on an half-yearly basis.

9. *Other Matters*

(*a*) Though the Group members do not continue to be DNR employees, they will continue to enjoy such facilities and amenities as enjoyed by them now (e.g. CHSS,etc.).

(*b*) Secretarial support, accommodation, etc. will continue to be provided to the Group by DNR.

(*c*) For matters relating to leave, etc. Secretary, NRC will be responsible.

10. *Conclusions*

It is hoped that these new rules will increase the effectiveness of the Group and its utility to various units of the DNR. The flexibility, freedom and openness to be exercised in regard to this Group will help the members undertake tasks involving greater initiative and responsibility. The constitution of a Group, such as the MAG, should be an adventurous experiment in the administrative history of the NRC, proving once again that it is resilient and perceptive to the winds of change.

Members of the Management Analysis
Group

Date: 17-9-1969.

Ganesh Mills (A)

MR. DESAI, General Manager of Ganesh Mills, was trying to decide what to do about the conflicts between the Sales Manager, the Processing Master and Folding Master of Ganesh Mills. Ever since Mr. Desai had joined the company six months previously, there had been strong disagreements between these executives on the quality of the cloth being produced. Recently there had been open hostility between them.

BACKGROUND

When Mr. Desai joined the company there had not been a General Manager for three months; soon after joining he determined that Mr. Joshi, the Sales Manager and a cousin of the former general manager, had evidently been hoping to become appointed general manager after his cousin left, and had been engaged in several activities which Desai described as a "power struggle."

Mr. Desai found a large accumulation of stock, a result of instructions by Mr. Joshi to the Folding Master not to fold several days' production due to "poor quality." Though the Folding Master, Mr. Pande, had disagreed with Mr. Joshi about the quality, he had finally acceded

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to Joshi's instructions. (For an organization chart, see Exhibit I). One of Mr. Desai's first preoccupations as General Manager had been to try to reduce the accumulation of cloth by getting it approved by Mr. Joshi, then folded, and delivered. Although much of the accumulation was reduced, Mr. Joshi continued to complain about the quality.

Mr. Desai stated that although Mr. Joshi was always irritatingly complaining about quality, his complaints were not illfounded or incorrect. Mr. Desai had discovered that many of the machines in the mill were faulty and had been poorly serviced during the tenure of the previous general manager. The calendar-machine rolls, for example, were worn out and difficult to adjust. But Mr. Desai was disturbed by Joshi's complaining for several reasons :

1. Even though quality was not as good as desired, Desai believed that Mr. Joshi exaggerated the defects.
2. Mr. Joshi's constant complaining was very aggravating to those who were trying to correct the situation, especially the Processing Master.
3. Mr. Joshi's complaints about the cloth were heard by the merchants to whom Ganesh Mills sold, and magnified by them many times over.
4. When Joshi complained about poorly dyed or finished cloth, he would back up his complaints by showing poor quality pieces without reference to the proportion of bad cloth to good.

Mr. Desai had taken several steps to try to remedy the disagreements about quality. He arranged daily meetings in the Folding Department between the Folding Master, Processing Master, and Sales Manager, at which the Sales Manager was supposed to inspect the cloth and record his approval or disapproval, with explanatory comments, in a ledger supplied by Mr. Desai. These records were an innovation for Ganesh Mills, which previously kept no formal records of the quality of the cloth. Mr. Desai also held a meeting each afternoon attended by all the executives concerned with production. The Sales Manager was unable to attend the afternoon meetings regularly, as he reported to the Director's Office every afternoon.

One morning Mr. Desai had assembled in the folding department all the executives concerned with production of cloth, along with the Sales Manager, and one of the Managing Directors, in order to inspect a large quantity of cloth, much of it previously rejected. After careful inspection, many of the previously rejected lots were approved by the Managing Director, much to Mr. Desai's satisfaction. But then the Processing Master, Mr. Naraindas, suddenly said to the Managing

Director, "Even for these good lots of material, Mr. Joshi has been passing nasty remarks in the register every day." Mr. Joshi became furious and claimed that in the past he had approved even bad goods just to accommodate the Processing Master, and that he would now show how poor the cloth was.

The executives proceeded to Mr. Desai's Office where, in a short time, Mr. Joshi, along with the Artificial-silk Sales Manager, produced many different pieces of cloth. The worst of these was a badly defective piece of terylene suiting. Mr. Joshi stated that this piece of terylene had just been received the day before and showed the Group in Desai's Office how poorly it was finished. The Director was very upset at the quality of the piece and instructed Mr. Desai to try to rectify it.

Upon investigations Mr. Desai found that the piece was actually three years' old and had been dyed and redyed many times. The defects had been in the piece before either he or Mr. Naraindas, the Processing Master, had been employed in Ganesh Mills. Mr. Desai was disturbed that Mr. Joshi had tried to pass this piece off as a new piece, and was concerned about the relationship between Mr. Joshi and Mr. Naraindas, who were very angry with each other. They had shouted at each other at the meeting; Desai wanted to get him co-operating or production would be seriously disrupted.

INTERVIEWS WITH MR. JOSHI, MR. NARAINDAS AND MR. PANDE

The Sales Manager, Mr. Joshi, explained why there had been trouble:

> The problem is with the quality of the goods, which are not finished properly. I have to repeat daily that the quality is not good enough; I don't like to do this but the merchants complain about the quality and then they want a discount on the goods.
>
> I don't think we should necessarily change the Processing Master, but he has only been here one year and I think he can't handle the labour because he is not strict enough with them and is afraid.
>
> I think the Folding Master, Mr. Pande, may be Naraindas' friend because they once worked in the same Mills. I think Pande talks behind my back and is defending the quality of the goods to protect Mr. Naraindas. Pande cooperates with me but I don't trust him. He used to talk against the former general manager, and if he could do that, then he could easily talk against me even though he is friendly to my face.
>
> Though the former general manager was my cousin, I had no influence with him and in fact I would have preferred working for a stranger. I was always afraid that my good relations with him

> would be spoiled so I never said anything which could cause conflict for him. I didn't complain about quality then to the Managing Directors; in fact when he was here, I never had any contact with the Managing Directors even though I was supposed to report to them, because the general manager would talk to the Director in my presence and would not leave anything for me to say. But now I am able to report to the Directors and not the General Manager.
>
> Mr. Desai's Assistant has to go on trying to get met to agree to allow 10% variation in quality but I want to get it down to 5%. After all, we have to be very careful to satisfy our customers.

The Processing Master, Mr. Naraindas, expressed puzzlement at the problem between himself and Mr. Joshi :

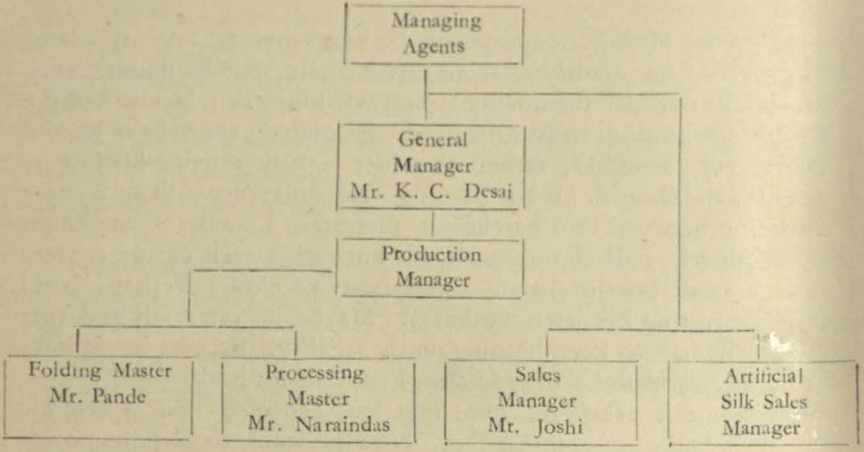
> I do not know why Joshi is persecuting me: may be it is because I speak directly and frankly to his face, but I can't help it, that's the way I am. I admit that our quality is not perfect—our machines and chemicals are poor and there are a thousand-and-one reasons why the quality is not right. There were no records kept before, so I can't say exactly how much quality has improved since I have been here, but I can guarantee that, if the quality was 50% right before, it is 60% now. There has to be some variation in finishing; the question is how much can there be before the customer notices it and complains.
>
> Joshi came to me when I first began to work here, and told me that he could make or break me as far as my job was concerned. He told me that the remarks he makes about the quality are not directed against me but are made to draw the Manager's attention to the possibility of defects. But he is still making me look bad in doing so, and how do I know that he can really take care of my job ?
>
> At the meeting with the Director, I had been warned by Mr. Desai to be prepared to show the quality of the goods. I showed the Director one piece that was perfectly all right yet still it had a negative comment written about it by the Sales Manager.
>
> Joshi got mad and thought I was trying to lay him low. I explained to him later that I was not trying to hurt him, but only defending myself. I apologised to him and told him that I was a mad man at the time and did not know what I was doing, and he has cooled off somewhat. I am meeting him tomorrow to try to talk things out. Maybe he is jealous of me because he thinks I am getting too much power in the company or something. This is not my first job and I am sure it won't be my last. I have got a good reputation in Bombay as a processor and others know that I can do good work. The former general manager appreciated my work very much be-

cause in the short time I was here I did three or four very tough jobs for him. I do not know why I take such abuses from Mr. Joshi. Mr. Pande, the Folding Master, added still another point of view :

> The Sales Manager is impossible; everytime he says the same thing about the quality over and over again, but he doesn't even know how to check the quality. You saw him when he checked the cloth this morning; to feel the finish he grabs it and rubs it up and down very roughly, rather than just lightly running his fingers over it as he should. It hardly makes any difference if there is some variation between two batches of material, because a merchant does not sell it all to one customer but rather each customer sees only a small portion of any one quality of cloth. Perhaps Joshi is just covering his own weakness. Maybe he can't sell and that is why he has to keep harping on the quality. Because he attacks so much, my blood boils and then I have to hit back.
>
> Everyone is afraid of him; that was especially true when his cousin was the general manager. Now he wants to keep his power and he resents anyone who won't be a "yes man" to him. Mr. Naraindas speaks directly to him and, unlike others, won't call a Monkey, a Donkey; so Joshi doesn't like him.
>
> The quality of the printing is just as bad as the quality of the finishing, but Joshi never says anything about it because the printer knows him. If you do what Joshi asks, then he won't complain about it.
>
> In Folding, we have to wait for the Sales Department's approval or packing orders before we can fold. If we do not get approval to fold, we get accumulation. When Mr. Desai asked Joshi why there were so many accumulations, Joshi got mad because Mr. Desai put it in writing in a note to him. Joshi was mad because Mr. Desai was doing his job.
>
> You never know what Joshi will think or say. If he dials your number and gets a busy signal two times in a row, he will say that you were trying to avoid him. When I see him I try to make him feel good and agree that the quality is bad because I don't want an argument from him.

EXHIBIT I

PARTIAL ORGANIZATION CHART


Managing Agents
General Manager Mr. K. C. Desai
Production Manager
Folding Master Mr. Pande
Processing Master Mr. Naraindas
Sales Manager Mr. Joshi
Artificial Silk Sales Manager

Exercise : Inter-Group Conflict Resolution

ONE OF THE important aspects of organisational life is conflict between different groups : line and staff, headquarters and branch offices, scientific workers and administrators, etc. With differentiation of functions along technical, territorial and time dimension, each group develops its own norms, group loyalties, and territorial imperatives, so that the goals of different groups sometimes run at cross-purposes with that of the organisation as a whole.

A model developed by Robert Blake[1] to help in reducing differences between conflicting groups is suggested as an exercise.

Take the Programme Analysis Group case for the exercise. Divide the members of the class in groups. The size of the group could vary from 6 to 10 members.

One group is assigned the role of the Programme Analysts and the other group of the administrators.

Each group is asked to work separately and discuss among themselves what they consider are their strong points. They are also asked to produce a list of what they believe are the strong points of the other group. And finally, they list what they believe the other group thinks of them.

The groups are given about 40 minutes for the above discussion and listing of points.

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[1] R.R. Blake, H. A. Shepard, and J. B. Monton, *Managing Inter-Group Conflict in Industry* (Houston : Gulf Publishing Company), 1965.

Representatives of each group then report their data to the other group. Both groups will now have some additional information : the images each group has of themselves, their image of others, and their perceptions of what others think of them.

There is no discussion between the two groups at this stage. The two groups go back to their locations to discuss the additional information and to consider what kind of behaviour on their part had led the other group to form the opinion that they have.

This attempt to identify their behaviour and the implications of that behaviour on producing misunderstandings and conflicts is then shared openly with each other.

Through this sharing of their behavioural problems, the groups then start working towards reducing the discrepancy between what they consider are their strong points and the images the other group has of them. In this final stage, the two groups also plan modification of procedures, behaviour, and other action plans.

The Ajit Verma case in the section Understanding of Change can also be used for this exercise, by dividing the group into young MBAs (Ajit Verma) and middle level executives (Chief Accountant).

This exercise is very effective in bringing conflicting and competing groups to work on a common task, of exploring the basis of discrepancies in their perceptions and resolving some of the inter-group conflicts.

PART SIX

Understanding Organizational Structure

RICE

Task and Work Group Organization

MILLER

Technlogy, Territory and Time

CHOWDHRY AND SARABHAI

Organization for Developmental Task : Atomic Energy Commission of India

READINGS

A. K. RICE

Task and Work Group Organization

INDUSTRIAL PRODUCTION systems perform many tasks at the same time. At the conscious level the most important tasks are the making of profits, the payment of dividends, the manufacture and sale of products, and the provision of employment in a great variety of occupational roles. At both conscious and unconscious levels production systems provide mechanisms for the satisfaction of social and psychological needs and for defence against anxiety.[1] The number and distribution of tasks vary between different systems and between different departments or sections of any one system. They may also vary over time. Each system or sub-system has, however, at any given time, one task which may be defined as its primary task—the task which it is created to perform.[2] Thus the primary task of private enterprise in a western economy is to make profits,[3] while that of a public utility is to give services. In making profits the private enterprise may give

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[1] Jaques, Elliott, 'On the Dynamics of Social Structure', *Human Relations*, 1953, Vol. VI, No. 1.

[2] Cf. Bion's definition of 'Sophisticated Task' in 'Experiences in Groups V', *Human Relations*, 1950, Vol. III, No. I. This comparison is discussed in Chapter 21.

[3] The 'making of profit' is used throughout this book in its widest sense, that is, it is used to refer in a brief way to the economic task of ensuring the long term financial stability of an enterprise of which the 'making of profits' is a convenient symbol. It does not mean the 'maximization of profits' at the expense of future investments, future developments or future economic stability.

Reprinted by permission from A.K. Rice, *Productivity and Social Organisation: The Ahmedabad Experiment* (London : Tavistock Publications Ltd.) 1958, pp. 31-39.

services, and in giving services, the public utility may make profits, but their primary tasks remain different and the effectiveness of their performance should be judged by different criteria. In the same way the primary tasks of the different departments of a factory may be to purchase raw materials, to manufacture, to market finished products, to obtain workers or to keep accounts. In so doing each contributes to the tasks of the others, but their primary tasks are different and are identifiable in terms of what they are created to perform.

The performance of a primary task invariably requires that other tasks should also be performed. The weaving of cloth requires that yarn should be provided, designs made, weavers employed, looms installed and maintained, and cloth inspected and measured. The ancillary tasks are controls over, and services to, the primary task. Their performance, however important, is secondary to that of the primary task. In making judgments about any organization two questions have priority over all others :

> What is the primary task ?
> How well is it performed ?

All other questions are subsidiary to these two.

TASK ORGANIZATION

The members of an organization contribute both to the performance of the primary task and to the emotions associated with what Bion has called 'the hatred of learning by experience.'[1] By this he means the hatred of having to behave as adult human beings in a sophisticated and reality-based manner. The attitudes of individuals and groups towards the effective performance of the primary task vary widely in quality and intensity, but by their continuing membership all must share to a greater or lesser extent in the realization of a common purpose. So far as their behaviour is adult and reality-based it can be said that :

> The performance of the primary task is supported by powerful social and psychological forces which ensure that a considerable capacity for cooperation is evoked among the members of the organization created to perform it,

and that, as a direct corollary,

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[1] Bion, W.R., 'Experiences in Groups V', *Human Relations*, 1950, Vol. III, No. I.

> the effective performance of a primary task can provide an important source of satisfaction for those engaged upon it.

In other words, there is, among the members of any organization, a need, whether latent or manifest, to get on with the job. They take pride and find satisfaction in doing the job well.

The high degree of cooperation in working groups faced with serious difficulty in the prformance of their primary task has often been noted. The respect felt for those who are capable of managing a situation so that effective task performance becomes possible is common knowledge. Equally, inefficient organization, which interrupts the flow of work, or otherwise makes effective performance difficult, is a well-known and frequent cause of dissatisfaction and frustration.

If the satisfaction to be obtained from primary task performance is to be realized, the task must be one that is recognizable and meaningful for those who perform it. Its performance must be felt as something for which responsibility has been taken. The relationships it provides must be satisfactory. Three assumptions may accordingly be made about task organization :

> 1. A task should be so organized that those engaged on it can experience, so far as is practicable, the completion of a 'whole' task.

'Closure,' giving a sense of completion, is a well-known source of individual satisfaction. Dissatisfactions caused by job-breakdown that leaves individuals responsible for only small component tasks are familiar. They have frequently been the subject of study, and numerous devices—such as displays or visits to other parts of a factory—have been used in attempts to convey a sense of 'wholeness' to workers engaged on component tasks.

Technological demands may require the number engaged on a 'whole' task to be too large for individuals to have an easily realizable sense of group membership. Yet problems of technological demand are frequently less intractable than they appear at first sight. Although the manufacture of a complete product by a group sufficiently small to provide a sense of group membership may not always be possible, a number of definite intermediate stages can often be arranged whose completion can be accomplished by such a group. At least some of the satisfactions of 'closure' can be so provided.

> 2. A task should be so organized that, so far as possible, those engaged upon it can control their own activities.

Both for individuals and groups, self-government, to the limit of their capacity to control their own activities, is a source of satisfaction. Without such internal self-government the individual or the group is forced into a dependent, child-like role. Though for some purposes this may be welcomed, it must, in those with aspirations to adult maturity, lead either to guilt at its acceptance or to resentment at its imposition. The capacity of individuals and of groups to take control of their own activities varies with their abilities as individuals and with the situation in which they find themselves. The 'situation' includes the whole structural and cultural complex of the society to which they belong. In some societies, notably those of the West, individualism is an established ideal; in others, of which Indian society is one, greater emphasis is placed on group membership and group leadership, particularly when the group is that of the family or community. Within the context of the structure and culture of the particular society, too much responsibility provokes anxiety, too little causes frustration.

Delegation of responsibility for 'government' can be made easier when tasks performed by individuals or groups can be performed within definable physical boundaries. Those responsible for the task can then 'own' their 'territory'. They can identify easily what is theirs and who belongs in it. They can raise questions about the rights of others not engaged on the task to be there. 'Territory,' in this sense, includes such obvious boundaries as a room or an enclosed section of a department, but it may also include less obvious boundaries such as those provided by a telephone communication network.

> 3. Related tasks should be so organized that those performing them can have satisfactory relationships.

When complaints are made about the quality of work at particular stages of manufacturing it is not uncommon for those responsible to find fault with the work of those engaged on the previous stage. In a textile mill, when the quality of weaving is called in question, the weavers will blame the preparation departments for poor warp beams, or the spinning departments for poor weft yarn. The process of passing the blame can easily be continued until it appears that the only fault lies with the man who planted the cotton.

This third assumption will hold for the relationships between individuals engaged on interdependent tasks, for the intra-group relationships of primary working groups, and for the inter-group relationships of groups engaged on different parts of a total process. Difficult relationships between members of a work organization may be caused by indifferent work in any one part of it; equally, but not necessarily so obviously, indifferent work may be caused by difficult relationships. It follows that component tasks should be so organized as to provide those engaged on them with satisfactory interpersonal relationships and that the relationships of those performing component tasks will have important effects on productivity.

WORK-GROUP ORGANIZATION

The three assumptions stated above apply to the organization of tasks rather than to the organization of work-groups, in that they can be made both about individual and about group task organization. By mechanization and job-breakdown modern industry makes it increasingly difficult for 'whole' tasks to be performed by self-governing individuals, and some form of collective organization, in which those who perform component operations can have relationships with those on related operations, is imperative. It follows from the assumption about primary task performance that:

> If task performance is efficiently organized, then there will be neither fewer, nor more, engaged on a 'whole' task than can efficiently perform it.

If there are too few engaged on 'whole' task performance, stress and strain are inevitable, with resulting poor performance and loss of satisfaction. If there are too many, then sooner or later there will arise a need to deny or otherwise to deal with the guilt involved in the mutual investment in inefficiency. It can be expected as a corollary to the above proposition that:

> A group consisting of the smallest number that can perform a 'whole' task and can satisfy the social and psychological needs of its members is, alike from the point of view of task performance and of those performing it, the most satisfactory and efficient group.

In every society there is obvious biological support for a productive group of two. Within the limits set by particular cultures, clinical experience, largely derived from psychological, psychiatric, and psycho-analytic practice, suggests that:

> 1. The smallest productive and satisfactory group is a pair, and the next most satisfactory a group of from six to twelve, with perhaps the most satisfactory of these a group of eight.

With fewer than six members the importance of individual contributions is so great that the fear of casualties, however caused and however temporary, may be such as to produce disruptive strain. With more than twelve, the complexities of the multiple relationships to be maintained become too great to be carried by every member, and the group tends to split into sub-groups. It follows that in those societies in which work-group organization is a desirable means of obtaining the satisfactions to be derived from group activities, tasks which can be performed by pairs or by groups of from six to twelve are likely to provide the most satisfactory relationships. Groups engaged upon tasks performed by three, four, or five or by more than twelve, are likely to require special conditions if the group is to build stable and cohesive relationships. Among these special conditions can be those in management groups in which each manager, although a member of a small group of colleagues, has a field of work for which he is responsible as an individual and which is therefore organized as a 'whole' task for him as an invididual. By contrast, the members of a primary working group have only their own group task and have no other source from which to obtain the satisfaction of effective task performance.

The most appropriate form of internal organization for any work-group will depend upon the structure and culture of the society from which the members come, particularly upon the prevailing attitudes towards leadership elites. Few societies are completely egalitarian, few of those that are developing industrially are not today at least suffused with ideas about equality of opportunity. If group stability is to be maintained the contribution of each individual member towards the task of the group must be accepted by all as valuable and the reward as equitable. Neither contributions nor rewards may necessarily be the same in quality or in quantity but both must be felt by the group to be appropriate. More formally, the assumption may be stated :

> 2. Group stability is more easily maintained when the range of skills required of group members is such that all members of the group can comprehend all the skills and, without necessarily having, or wanting to have, them, could aspire to their acquisition.

The greater the differences in skill between group members (whether the skills are comparable in level or not), the more difficult is communication likely to be between group members. The less likely therefore are they to form a cohesive whole.

Where the performance of the group task requires a range of skills so that all members cannot, by the nature of the task, share them all, acceptance of all skills as contrbuting to the task of the group is essential for satisfactory group life. Specialization of function in management groups made necessary by the increasing complexity of modern industry, or specialization of task in workers' groups brought about by increasing mechanization, usually calls for some skill differentiation among the members of these groups. When this occurs the need for the recognition of the appropriateness of contributions may be stated as :

> 3. The fewer differences there are in prestige and status within a group, the more likely is the internal structure of a group to be stable and the more likely are its members to accept internal leadership.

Inequalities of responsibility and authority in management commands, for example, can lead to considerable difficulties in relationships between colleagues unless the inequalities are accepted and adequately structured into the group organization.

Consideration of the highly structured character of Indian society, of the industrialization and urbanization which is occurring, and of current attempts to increase social mobility, suggested that for Indian conditions the second and third assumptions could be stated together:

> The tasks performed by members of a group should be differentiated according to the skills required and the equipment used, and tasks requiring different levels of skill should be hierarchically structured. The task organization should provide opportunities for change in status within the group, and, as a corollary, tasks requiring comparable skills should provide some opportunities for interchange of task between members of the group.
>
> The greater the value attached to group membership as an end in itself, the greater the fear of its loss and, hence, the greater the danger that the group, as a group, will become more important than the task it was created to perform.[4]

If this occurs and, as a result, task performance suffers, then the whole group may suffer such loss of satisfaction because of ineffective performance that, even as a group, it may be unable to continue. It is important therefore that :

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[4] Adams, S., 'Status Congruency as a Variable in Small Group Performance', *Social Forms*, 1953, Vol. 32. In this American study it was shown that the performance of groups with high as well as with low status congruence was poor; that is, the highly congruent groups appeared to have put group membership before group performance. It may be surmised that the formation of highly congruent groups was a neurotic mechanism unrelated to primary task performance. See also Likert, Rensis, 'Developing Patterns in Management', *Personnel Management*, 1956, Vol. XXXVIII, No. 337.

4. When members of small work groups become disaffected to the extent that they can no longer fit into their own work group, those disaffected should be able to move to other small work groups engaged on similar tasks.

The possibility of transferring to other similarly structured work groups reduces the emotional investment in membership of a particular group and the chance of exclusion is not so threatening as to be itself disruptive. Recent work on labour turnover[5] has suggested that where individuals go when they leave an institution and how they are assisted to get there deserve at least as much attention, for the sake of the institution, as where they come from and how they are inducted when they enter.

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[5] Rice, A.K., 'The Relative Independence of Sub-Institutions as Illustrated by Departmental Labour Turnover (The Glacier Project—VII)', *Human Relations*, 1952, Vol. V, No.1.

ERIC J. MILLER

Technology, Territory, and Time

The Internal Differentiation of Complex Production Systems[1]

THE CONCEPT of a production system as a socio-technical system was introduced by Trist (13), was further developed by Rice in his recent book (10). Of particular relevance here is Rice's concept of operating and managing systems,[2] summarized below :

> Any production system may be defined by reference to what is imported into and exported from it. . . Complex industrial systems import raw materials, convert them into a variety of products, and export the products by selling them. . . .
>
> The process of changing import into export may require the carrying out of either sequential or simultaneous operations, or of both. When different operations are carried out discretely, a production system may be differentiated into *operating systems*. . .
>
> In the most general case production systems may be differentiated into three kinds of operating systems concerned with. . . import. . . , conversion. . . (and) export. . .
>
> In a complex organization there may be more than one system of each kind. In a simple organization there may be incomplete differentiation, more than one operation being carried out in the same operating system.

Reprinted by permission from *Human Relations*, Vol. XII, No. 3, August 1959.

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[1] I am indebted to my colleagues in the Tavistock Institute of Human Relations for many helpful comments on and criticisms of earlier drafts of this paper.

[2] In an earlier paper Rice and Trist used the term 'governing system' (11).

> When a production system is differentiated into discrete operating systems its management cannot be contained in any one operating system, and a system external to the operating systems is required to control and service their activities. This is the *managing system* (10, pp. 41-2).

The managing system may contain differentiated *service and control functions*. Typical examples in industry are planning, research and development, cost control and accounting, engineering, personnel, etc., all of which help to service and control the operating systems.

Rice goes on to point out that in a complex hierarchical production system the main or first-order operating systems may be differentiated into second-order operating and managing systems, the second-order operating systems into third-order systems, and so on, until one reaches the *primary production system*, within which management is internally structured and is not a discrete function.

This set of concepts, in conjunction with the concept of the *primary task* as the task that a system is created to perform (10, pp. 32 ff.), provides a useful framework for analysing an industrial or business organization.

The present paper explores the principles of differentiation of operating units within a complex system. Part I describes these principles or dimensions of differentiation in the context of transition from a primary or simple production system to a complex system. An analysis is made of the forces that may act on a simple system to transform it into a complex system containing differentiated operating and managing systems. There is discussion of what happens inside the system when such a transition takes place. In Part II the dimensions are examined in relation to the order of differentiation in a multi-level, multi-shift complex system. Finally, Part III deals with the patterns or relationships—and therefore the problems of management—which are inherent in the structure of certain typical production systems, according to the basis of internal differentiation into sub-systems and the nature and degree of sub-system interdependence.

In Lewinian terms, we are dealing here with the "foreign hull" of the life space of the individual—'facts which are not subject to psychological laws but which influence the state of the life space' (8, p. 216; see also pp. 68-74).

PART I: THE TRANSITION FROM SIMPLE TO COMPLEX SYSTEM

The typical simple production system in industry is the primary work-group. Elsewhere it appears in the small workshop, the retail shop, the service station, and so forth. The essential feature of such a system is that management is inherent in relationships within the group: either there is no recognized leader at all (as is the case in some mining groups (5; 14), or, if there is one, he spends all, or most of his time working alongside the other members of the group on tasks comparable to theirs. His contribution to the output of the group tends to be directly productive rather than indirect and facilitative.

Herbst has described certain characteristics of simple and complex behaviour systems (3). He finds that one significant criterion of a simple system is that the relationship between input, size, and output is linear. (Input and output are here measured in money rather than goods.) In small retail shops, for example, the total amount paid in wages (i.e. input) increases at a linear rate with sales turnover (output) achieved, while sales turnover increases at a linear rate with the size of the shop, measured by the number of persons employed. In a complex system the relationship is non-linear. "The presence of an administrative unit concerned with on-going activities increases the rate at which sales turnover increases with size of the organization, and. . . the loss incurred by withdrawing personnel from production tasks decreases as the organization becomes larger (3, p. 344)." Herbst has this to say about the transition from a simple to a complex system:

> As the size of the simple systems increases, and depending also on the extent of both its internal and external linkages, more and more work has to be carried out on the co-ordination of component functioning, so that a critical boundary value with respect to size is reached beyond which intrinsic regulation breaks down. An increase in size beyond this point will become possible by differentiating out a separate integrating unit, which takes over the function of both control and co-ordination of component units, thus leading to a transition from a simple to a complex system. The point at which intrinsic regulation breaks down will be determined by the effectiveness of the organizational structure. The less efficient the organizational structure happens to be the earlier the point at which intrinsic regulation breaks down (3, pp. 337-8).

In other words, three critical factors in the transition are size, complexity, and efficiency. Herbst here seems to be implying that the efficiency of a simple system is measured by the extent to which the system can tolerate increased size and complexity without throwing up a differentiated management function. However, if efficiency is measured by the ratio of output to size—a ratio that Herbst himself uses elsewhere in the same article—then it would appear that this assumption might not always be justifiable. If, for example, a simple system of given size could secure a greater output by becoming reorganized as a complex system of the same size then its persistence as a simple system would be relatively inefficient. 'Resilience' might therefore be a more appropriate term than 'efficiency' to describe the capacity of a simple system to withstand pressures—both external and internal—towards transformation into a complex system. This would be an omnibus term embracing a number of factors of small group functioning which counter the effects of increased size and complexity. Some of these factors are considered later in this section.

Size by itself is not a critical factor. Apart from the pair, groups of six to twelve are often said to be the most stable, in both psychotherapeutic and other situations (10, pp. 36-7). Fissiparous forces tend to develop in groups outside this optimum range, but there is no known maximum number beyond which emergence of a full-time management function is inevitable. Much depends on the need for differentiation that is intrinsic in the task of the group and in the way the task has to be, or is being, performed. Herbst notes, for example, that in independent retail shops a differentiated administrative function tends to appear when the staff numbers around five, whereas shops that belong to a retail chain retain the characteristics of simple systems until the size reaches about nine. Certain services are supplied to the latter by the larger organization to which they belong. In the Durham coalfield autonomous groups of forty-one have been shown to be effective (14). They have internally structured controls and services and lack any overtly recognized and titled leader. These groups are further discussed below.

Complexity may be considered in terms of Rice's import-conversion-export formulation. Imports into the system and exports from it may become more diverse. Complexity of the conversion process is likely to increase through diversification of input or output or both, or through a change in the techniques or rates of production.

Before considering these factors of size and complexity in more detail, it seems necessary to stress that an essential preliminary to differentiation of a managing system is the formation of sub-systems with discrete sub-tasks within the simple system. Role-relationships cluster around the sub-tasks; such clusters of relationships become potential sub-systems; and areas of less intensive relationships become potential boundaries between sub-systems. Clustering may be functional for sub-task performance, but the associated discontinuities between clusters may be disfunctional for integrated performance of the total task. It becomes a function of a differentiated managing system to compensate for these discontinuities. Management mediates relationships among the lower-order systems, which constitute the higher-order system, in such a way as to ensure that the sub-tasks performed by the sub-units add up to the total task of the whole unit.

If the principles of differentiation of sub-systems can be identified, then the effects of changes of size and complexity can be more clearly understood; and furthermore the notion of 'resilience'—the capacity to withstand, without sacrifices of efficiency, the pressures towards creation of a differentiated managing system—will become less vague.

It is postulated here that there are three possible bases for clustering of role-relationships and thus for the internal differentiation of a production system. These are technology territory and time. Whenever forces towards differentiation operate upon a simple production system, it is one or more of these dimensions that will form the boundaries of the emergent sub-systems and will provide the basis for the internal solidarity of the groups associated with them.

'Technology' here is given a broad meaning. It refers to the material means, techniques, and skills required for performance of a given task. Differentiation of the import, conversion, and export systems (the purchasing, manufacturing, and selling of an industrial unit) is in this sense a technological differentiation; so also is differentiation of phases of the conversion operation (successive manufacturing processes), or specialization in buying or selling particular commodities. The greater the diversity of technologies used within a group, the stronger the forces towards differentiation of fully-fledged sub-systems—especially when the skills of some members are so specialized that others cannot aspire to have them or even comprehend them, and interchange of roles between members of the total groups becomes impracticable.[3] Increase in technological complexity or diversity tends to have this effect even though the quantum of input and output remains unchanged. It may even occur where the size of the system, in terms of the number of roles, is reduced.[4]

The dimension of territory is straightforward: it relates to the geography of task performance. An increase in the staff of a retail shop from three persons to five may not precipitate formation of a differentiated management function. If, however, the two extra persons are employed to start a branch store—if, in other words, two potential sub-systems are formed, spatially separated from one another—then the forces towards differentiation will be greatly increased. Physical separation is not essential to produce this result, but a sharp physical boundary of some kind is probably necessary before territory by itself

[3] The obverse point was made by Rice (10, pp. 37-9), who postulated that small work-groups in modern mechanized industry usually require sufficient variety of roles (implying some technological differentiation) as to need some internal structuring, but should not have so much specialization as would lead to formation of inflexible sub-groups.

[4] In her study of industrial firms in south Essex, Joan Woodward noted that 'the number of levels of authority in the management hierarchy increased with technical complexity', while 'the span of control of the first-line supervisor. . . decreased' (15, p. 16).

can become a basis of sub-system differentiation within a simple production system. Identification of the group with its territory is of course a basic feature of all human societies and is found too among many of the higher mammals. Even boundaries that are imperceptible to an external observer may have highly charged emotional significance for the members of the groups they divide—especially when territorial differentiation is reinforced by technological differentiation. Technology, indeed, seems to seek the support of territory, and only seldom stands by itself as a differentiating factor. (In most parts of India, castes which are differentiated from one another by their traditional occupations are also segregated spatially, living in different parts of the village or in different villages.)

The third dimension—time—is more commonly relevant in increasing the levels of differentiation in an already differentiated complex system, but may also reinforce an increase in size in bringing about the transition from a simple system to a complex one. Forces towards differentiation probably begin to develop when the requirements of task performances are such that the length of the working day or working week of the group exceeds the working period of any individual member. This factor of time is of course most pronounced in multi-shift systems. As in the case of territorial separation, sub-systems tend to emerge with well-defined boundaries, which in this case are based on time separation.

The sub-systems and associated groupings described in the preceding paragraphs are those that are intrinsic to the structure of the task. Task structure is assumed to be inseparable from the type of technology and specialization involved, from the geography of the territory in which the task is performed, and from the time-scale of task performance—though within these limiting factors alternative structures may be possible.

Among the persons manning the roles of a production system other groupings may occur, based on propinquity, sex, age, religion, race, and many other principles of association, and on occasion these groupings and related cleavages, perhaps by their coincidence with task-oriented groupings, may accelerate differentiation; or, if they cut across these groupings, they may retard it. It is the task-oriented sub-systems themselves, however, which are relevant to task performance. These seem invariably to be differentiated by technology, territory, time, or some combination of these.[5] Production systems can probably not be satisfactorily broken down into sub-systems on any other basis.[6]

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[5] Since drafting this paper I have seen Gulick's five-fold classification of ways in which work in an organization can be grouped: by purpose (cf. by product), by process, by clientele, by place, and by time (2). My 'technological' category would embrace the first three of these. There seems, however, to be a conceptual distinction between the grouping of work and the differentiation of socio-technical systems, and in several respects the simi-

If territory, technology, and time, singly or in combination, provide the basis for differentiation into task-relevant sub-systems, the capacity of a simple system to tolerate growth and remain efficient without becoming transformed into a complex system is apparently related to two main factors : (a) mobility or fluidity, and (b) sub-system interdependence.

If individual members move frequently from one sub-system to another, so that there are no permanent sub-groups of workers coinciding with the task sub-systems, then the simple system will have greater capacity to tolerate an increase in size or complexity. Such movement compensates for discontinuities between sub-systems. Secondly, the more immediately and directly performance of the task of each sub-system depends upon the performance of all the other sub-systems, the more likely is the total simple system to remain viable in the face of forces towards differentiation. (Without some task interdependence it is, of course, not a production system but an assembly or aggregate of individuals.)

Exceptionally large simple production systems occur in longwall coal-mining, in a form of composite working described by Trist and Murray (14) and Higgin (5). As mentioned earlier, some of the composite groups have forty-one members working over three shifts. Both 'resilience' factors operate strongly in these groups, which are internally differentiated by both technology and time. Although the individual sub-systems have well-defined tasks, mobility between the sub-systems allows many or all of the members to view inter-sub-system relationships from the perspective of the total system rather than from the perspective of the sub-systems they happen to belong to at any one time.

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larity between the 'scientific-management' theories of Gulick, Urwick, et. al. and the aspect of socio-technical-system theory elaborated in this paper is only superficial. One difference is that—as, for example, March and Simon (9) have pointed out—Gulick's models do not take human motivations into account: he is dealing with management of technical systems, not of socio-technical systems. In Gulick's scheme, principles of association extraneous to work are obstructions to be overcome in establishing an essentially static and inflexible organization; in the more dynamic socio-technical-system theory they are a relevant part of the total reality situation. In general, the Gulick type of organizational theory does not lend itself to predictions about behaviour and relationships.

[6] The women's service in the forces may at first sight appear to be an exception to this rule. Closer examination shows, however, that these do not constitute production systems within which the members are interrelated and integrated by performance of a specific task. The production systems in the forces are the training and fighting units to which members of the women's services are attached (in much the same way as medical and signals personnel are attached to an infantry battalion) and to the task of which they contribute. In terms of the tasks of these units, the women may do jobs which are similar or dissimilar to jobs of men in the same unit; but in either event it is the technological specialization which is relevant to the total task, and their sex is incidental.

Close reciprocal interdependence, necessary in these mining groups for achieving the total task, evidently helps to reinforce this global perspective.

It may well be that it is not the number of persons that limits the maximum size of a simple production system, but the number of sub-systems. (A sub-system may consist of either an individual or a sub-group). Certainly, complexity in task structuring can actually contribute to the cohesion of large simple systems. Where there is a number of sub-systems interdependent in more than one direction,the complex conditions of equilibrium can be substituted for a differentiated management function. It is the very lack of such complexity built in to the task that helps to lower the threshold of 'resilience' in less structured simple production systems. Internal structuring for which the primary task does not cater is sought in other groupings (based on age, sex, etc.), implying involvement in other tasks that to a greater or lesser extent conflict with the primary task for which the system was constituted. In some cases it may be possible to use these factors of resilience and to restructure roles in such a way as to postpone the emergence of a differentiated managing system.

It can be inferred that, in any expanding or changing system in which no such restructuring has occurred, there is an optimum or 'natural' stage for creating a new level of management. This is applicable equally to the initial transition from a simple system to a complex system and to the addition of a new level to an already complex hierarchical system.

Premature differentiation is uneconomic because the cost of adding a specialized administrative function is greater than the gain from any increase in efficiency that results. As sub-systems have not yet been crystallized by task differentiation, government is more efficiently contained as an undifferentiated internal function. Indeed, extrinsic government, if imposed prematurely, may tend to be more destructive than integrative. [This is the kind of situation in which the internal collaborative relationships, which before the change have been used constructively for task performance, are likely to be mobilized destructively against the imposed external management : cf. Trist and Bamforth (13).]

Postponement of differentiation of the management function beyond the optimum stage also leads to a decline in the efficiency of the system, but for a different reason. The energies of group members, instead of being devoted to the primary task, are increasingly diverted to the task of holding the group together in the face of the fissiparous forces of sub-group formation and of differentiation. This is especially likely to happen if there is imbalance in the pattern of sub-system interdependence. Individual's experiences conflict between identification with an emergent sub-group and identification with the total group. Only the creation of a new level of management which allows the sub-systems to become fully explicit simple systems and which reintegrates them as parts of a higher-order system, permits the energies of the members to revert to primary task performance.

Herbst uses the input-size-output relationship as an index for measuring the level of behaviour systems and for diagnosing whether a given system is simple or complex (3). The reverse approach may also be useful. If a production system, which is known to have the structural characteristics of a simple system, increases in size, and if this expansion is unaccompanied by a linear increase in output, then (other things being equal) it is worth investigating whether the system has passed the optimum stage for differentiation—either because the sub-systems are in a stage of disequilibrium or because of emergence of sub-groups unrelated to the primary task of the system. The same possibility may exist if a simple system, remaining constant in size, shows over a period of time a declining output. Equally, if a structural transition from a simple to a complex system is not accompanied by the kind of change in size-output ratio predictable from a Herbst-type formula for systems of that kind, then it is possible that differentiation of the managing system has been premature.

PART II : STRUCTURE OF COMPLEX PRODUCTION SYSTEMS

The forces towards transforming a simple system into a complex system, or towards increasing the levels of differentiation in a system that is already complex, are not only of theoretical interest to social scientists, but also of practical interest to those concerned with management. It has already been suggested, for instance, that working efficiency and cost are likely to be adversely affected if the timing of a change in response to the accumulating forces towards differentiation is not opportune. A second cause of inefficiency may lie in an inappropriate choice of the basis of differentiation into sub-units.

In the initial transition from a simple to a complex system, the basis of differentiation is usually directly traceable to the forces leading to differentiation. Consider the example of a small privately owned workshop that manufactures simple components, all of the same kind, for the automobile industry. Raw materials are delivered and the finished products removed by the company it supplies. Administration takes up little of the owner's time and he himself works at a bench alongside his employees. This is the typical simple production system. Let us imagine that demand grows, and because of lack of space for expansion the owner acquires two more workshops in the vicinity. If the three workshops are sufficiently far apart, the owner is likely to spend less of his time at the bench and to take a nearly full-time managerial role. The three workshops then become three simple operating systems within a complex production system. In other words, territorial expansion has led to differentiation and it is territorially demarcated sub-units that are explicitly recognized.

Alternatively, the expansion might have been achieved by adding two more shifts in the original workshop. The shifts would then become the recognized sub-units, and, because of the need for control and co-ordination over the twenty-four hours, the owner would again take a full-time managerial role.

We now have to consider what happens when additional forces towards differentiation operate on a production system that has already become complex and there is the prospect of extending the hierarchy by further differentiation. Here again the forces themselves will dictate the new basis for differentiation, but not necessarily the level at which it will occur.

Reverting to our example, let us now suppose that further expansion requires all three workshops to run on three shifts. Each shift in each workshop is now likely to develop into a simple sub-system, and sooner or later the owner-manager will be compelled to realize that there are nine workshop-shifts to be managed, instead of merely three workshops on one shift, or three shifts in one workshop (Figure 1).

FIGURE 1

SUB-UNITS DIFFERENTIATED BY BOTH TERRITORY AND TIME

Time Differentiation

Territorial Differentiation	Workshop A Shift I	Workshop A Shift II	Workshop A Shift III
	Workshop B Shift I	Workshop B Shift II	Workshop B Shift III
	Workshop C Shift I	Workshop C Shift II	Workshop C Shift III

Increase in the number of sub-units does not, of course, necessarily lead to further differentiation and to an increase in the number of levels. If, for example, output had been tripled by expanding from three workshops to nine, instead of by adding more shifts, the additional simple production systems so created could have become explicit without necessarily over-extending the span of the overall manager's command. Even in the present example, it might be practicable to maintain direct control of the nine sub-units, perhaps by employing additional staff for time-keeping and recording production—that is, by increasing the size of the managing system without adding to the number of levels in the hierarchy. However, since the sub-systems in this case are differentiated and inter-dependent along two dimensions (territory and time) that cut across each other, and therefore have to be coordinated along these two dimensions, it is likely that an additional level of management will be interposed.

The owner is now faced with a choice. He may introduce the new level by managing the three territories (workshops) through three foremen, delegating to the foremen in each workshop the task of co-ordinating the three shifts within it (Figure 2). Alternatively, he may elect to undertake co-ordination of the three shifts himself by appointing three shift's foremen, each of whom is responsible for the works on one shift in all three workshops (Figure 3).[7] The fact that territorial differentiation preceded the addition of shifts by no means presupposes that, in the management hierarchy, territorial differentiation need occur at a higher level than differentiation by time.

It is now necessary to consider this choice in more detail. In fact, it is a real choice only in so far as territory and time are equally salient in differentiating the nine simple systems from one another. In terms of task relationships, this is so only when one shift in one workshop is equally interdependent with other shifts in the same workshop and with the corresponding shift in other workshops. Workshop *A* Shift I (*A* I) belongs then to two larger systems : itis part of the '*A*' system, within which the other systems are *A* II and *A* III, and it is part of the 'I' system, within which the other systems are *B* I and *C* I (cf. Figure 1). In the situation of equal interdependence,

$$R(A\ I,\ A\ II,\ A\ III)-R(A\ I,\ B\ I,\ C\ I),$$

where R is a measure of task interrelatedness between the simple systems. Such an equilibrium may make it possible for the nine workshop shifts to be managed directly without interposing a new level of differentiation.

We have seen that the formation of sub-systems with discrete sub-

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[7] It was A.K. Rice who first drew my attention to this kind of choice, to which he also refers in his recent book (10, pp. 177 and 200-1).

FIGURE 2 *FIRST-ORDER DIFFERENTIATION BY TERRITORY SECOND-ORDER DIFFERENTIATION BY TIME*

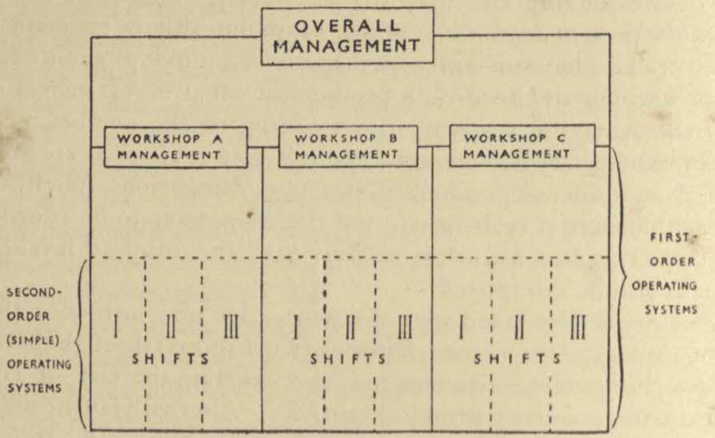
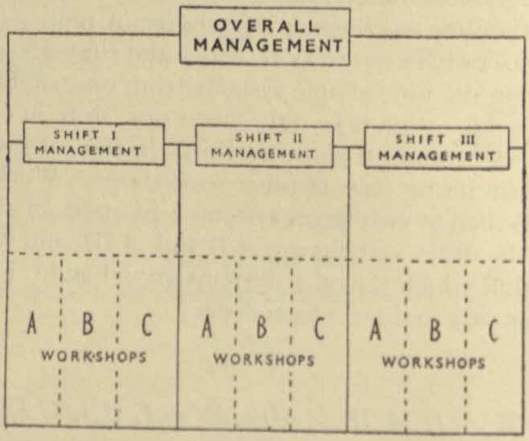


FIGURE 3 *FIRST-ORDER DIFFERENTIATION BY TIME SECOND-ORDER DIFFERENTIATION BY TERRITORY*



tasks is a necessary preliminary to transition from a simple to a complex system. Similarly, in an expanding complex system, the clustering of sub-systems precipitates an additional level of differentiation, in which the clusters are acknowledged as explicit systems of a higher order than the constituent sub-systems.

When two dimensions of differentiation are involved, with two implicit sets of systems cutting across one another, it is seldom that they actually have equal salience. Task relationships generally draw the basic units into the orbit of one system more strongly than into the other, and so dictate the lines of higher-order and lower-order differentiation. Furthermore, even if task-oriented interrelations themselves do have equal salience, other factors may tend to tilt the balance one way or the other. Persons who share a compact territory over three shifts, for example, may feel more strongly identified than those who share the same shift timing over dispersed territories. Alternatively, if the dispersal is limited, going to work at the same time, and hence sharing free time, may lead to closer identification.

Failure to differentiate on the appropriate basis will create stress in relationships, because the natural groupings inherent in the structure of task performance will run counter to the groupings dictated by the formal organization. Formal boundaries will cut through these natural groupings. This will inhibit development of solidarity in the formal units, with consequent lowering of work satisfaction and morale. In general, we can suggest that to the extent that the formal structuring deviates from the reality of the task situation, whether in the basis for differentiation or in the boundaries of the formal sub-units, to that extent will the management function itself have to multiply and become 'top-heavy' in order to deal with the resultant dysphoria. Additional controls will have to be imposed. This tendency will increase in proportion to the inter-dependence of the formal units. If on the other hand a unit is appropriately sub-divided in relation to total task performance—if it is cut, so to speak, with the grain and not against it—both the internal management of the constitutent sub-units and the overall integration of the total task are likely to require less effort.

Flexibility is not entirely lacking. Imposition of a managing system itself helps to crystallize the selected basis and boundaries of differentiation of operating systems. Therefore, provided that the salience of two dimensions is not too unequal, differentiation at the higher level along the dimension of lower salience may increase the salience of that dimension to a point where it exceeds that of the other. This would not appreciably increase the difficulties of management. Similarly, if prior clustering of sub-units is not too strong, the emergent boundaries can be supplanted by formal boundaries that do not necessarily coincide with them. Such flexibility, however, occurs only in marginal cases.

So far, instances of only two orders of differentiation have been discussed—by territory and time. We have seen that there is, subject to certain limiting factors, a choice between :

(*a*) first-order differentiation by territory and second-order differentiation by time (Figure 2); and (*b*) first-order differentiation by time and second-order differentiation by territory (Figure 3).

A third possibility, provided the salience of the two dimensions is roughly equal, is to accept only one order of differentiation, operating systems being differentiated simultaneously by the time dimension in one direction and by the territorial dimension in the other. This was illustrated in Figure 1, which shows three time sub-divisions and three territorial sub-divisions, making nine sub-units in all. Theoretically there is yet another way of compressing differentiation by two dimensions into one level. This occurs when the two dimensions, instead of operating at right angles, coincide and reinforce one another. Time and territory coincide in this way when shift working is used in highly mechanized road construction. A piece of mobile equipment—the common technology—is operated by one team in one stretch of road on Shift I, by a second team on a fresh territory on Shift II, and so on. In longwall coal-getting time and technology coincide as differentiating dimensions, territory being undifferentiated: a different technology is used on each of three different shifts on one coal-face. Both these combinations are fairly rare in industry, where it is territory and technology that most frequently coincide as reinforcing dimensions: in manufacturing operations, more often than not, each of a group of technologically differentiated sub-units has its own discrete territory of task performance as well.

When all three dimensions of differentiation occure (if, in the example of the workshop, several products are manufactured in each of the three workshops on three shifts), the theoretical choice of order of differentiation is greatly increased. Assuming that differentiation occurs only once along each dimension, there are six combinations of three levels of differentiation, six more of two, and one of one level. These are listed in Figure 4. It should be noted that in the seven combinations (Nos. 7-13) involving differentiation by more than one dimension at one level, the simultaneous differentiation may be either (a) cross-cutting or (b) coincident and reinforcing.

Where there are more than three levels, at least one dimension will become the basis of differentiation at more than one level. In a large manufacturing concern, for example, there may be first-order differentiation into purchasing, manufacturing, and sales (technology); second-order differentiation of manufacturing into product units (technology, probably reinforced by territory); third-order differentiation of the product units into departments responsible for various phases of the process (again technology plus territory); and so forth. Time differentiation will occur in a multi-shift concern, but a twenty-four hour command is narrowed down into eight-hour commands at only one level in any segment of a hierarchy. It may nevertheless occur at different segments of the same total hierarchy.

Figure 4

Internal Differentiation of a Complex Production System by Territory, Technology, and Time (Assuming that Differentiation Occurs Once, and Only Once, Along Each Dimension)

	Orders of Differentiation		
	1st	*2nd*	*3rd*
1	Territory	Time	Technology
2	Territory	Technology	Time
3	Technology	Territory	Time
4	Technology	Time	Territory
5	Time	Technology	Territory
6	Time	Territory	Technology
7	Territory and Time	Technology	..
8	Technology	Territory and Time	..
9	Territory and Technology	Time	..
10	Time	Territory and Technology	..
11	Technology and Time	Territory	..
12	Territory	Territory	..
13	Territory, Technology, and Time	..	..

Very often the internal structure of a large organization is the cumulative result of many small local changes. Adherence to a particular pattern of differentiation adopted in response to one change may limit the possible responses to subsequent changes. In so far as the enterprise is a system, a change in one area will affect other areas. Accordingly, any organizational change must be planned in the context of the total structure, to ensure that it provides for the most efficient performance of the primary task of the enterprise.

Theoretically there are very many ways of differentiating a large organization. Depending on the size of commands and the amount of delegation, the number of levels can vary, and the basis of differentiation at each level offers many possible combinations. As we have seen, however, the inherent structure of the task imposes limitations on choice. It is now necessary to discuss in more detail some of the factors that make one choice more appropriate than others.

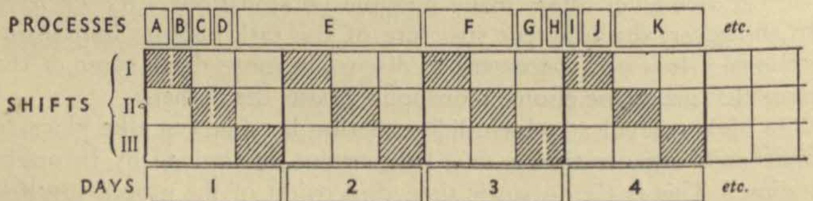
The highest level at which differentiation by time can take place in a multi-shift organization is to a large extent determined by throughput time. This is the intrinsic time dimension of the process itself—in effect, the interval between input and output. A series of consecutive processes places the associated task-roles into an output. A series of consecutive processes places the associated task-roles into a temporal order that follows the flow of material, even though the occupants of these roles are all working simultaneously and are therefore not differentiated from one another along the time dimension. Some consequences of this temporal order of tasks are examined in Part III. What is relevant in the present context is that the head of a shift command cannot be held fully accountable for his shift's performance if the throughput time of the operation exceeds the duration of the shift.

In a composite spinning and weaving mill, for example, it takes two-three weeks for a piece of raw cotton to emerge as a length of woven cloth. During that period, if it is a multi-shift concern, the cotton goes through the entire shift cycle many time as it undergoes one process after another. In such a mill, first-order differentiation by time would be impractical. Figure 5 illustrates this point. A manager in charge of a shift that extended longitudinally through all these processes would be only partially and intermittently responsible for what happened to a given piece of raw material in the various stages of manufacture. For two-thirds of the time it would be outside his control. Responsibility for the total operation would be diffused among all three shifts' managers, and it would seldom be possible to attribute faults in the end-product to one of them more than to another. In relation to such a long throughput time, in other words, the shift is no more than a category: it is not a task-relevant grouping. Technological differentiation would be necessary at a higher level to narrow down the command to groups of processes and then to individual processes. Only at this point could the twenty-

FIGURE 5 *REPRESENTATION OF A CONTINUOUS THREE-SHIFT MANUFACTURING OPERATION*

SHOWING THE ROUTE THROUGH VARIOUS PROCESSES AND SHIFTS OF A PIECE OF MATERIAL ENTERING PROCESS A IN SHIFT I

(Throughput time of Process A is less than one shift; throughput time of Process E is four shifts; etc.)



four-hour command be broken down into three shifts commands. (It may happen, of course, that throughputt ime still exceeds shift time even when no further differentiation by technology or territory is possible. If a multi-shift command at this level cannot constitute a simple production systems then it will be necessary to tolerate shift commands which do not allow full responsibility to be taken by the shift head.)

In contrast to textiles, electrical generation is a good example of short throughput time. Coal is transformed into steam and steam into electricity almost instantaneously. Consequently it is possible to differentiate by time at a high level: shift engineers can take charge of boilers, turbines, switchgear, etc. Indeed, so intimate and immediate is the connection between the various operatons that it would be unrealistic to differentiate technologically between, say, boilers and turbines at a higher level than by time. The people preforming all the operations on one shift constitute a more coherent system than the people performing one operation over several shifts. Thus, the highest level at which time differentiation can occur by the criterion of throughput time is also probably the optimum level for such differentiation. Slow throughput time emphasizes the territorial and technological groupings and cleavages; swift throughput emphasizes those that pertain to time.

In some multi-shift concerns, there is obstensibly first-order technological differentiation into departments and second-order differentiation into shifts, implying that the department heads have a twenty-four-hour responsibility. In addition, however, the overall manager may appoint second and third shift managers to co-ordinate the departments during his own absence. (Similarly, a naval vessel has a chief engineer, a chief gunnery officer, etc., in charge of their respective 'departments' over twenty-four hours, but there is also an executive officer of the watch who is in full charge of shipboard operations during his period of duty.) Shift heads within a department are thus subordinates in certain ways both to their department head and to their shift manager. In this situation the responsibility and authority of the two superior roles need careful clarification. In some cases it may prove necessary to make explicit first-order differentiation by time and second-order differentiation by technology: here, as in the power-station example, departments would be only one shift 'deep' along the time dimension and department heads would have only an eight-hour responsibility. In other cases the shift managers do not represent an additional level of authority. They are part of the first-order managing system—extensions of the overall manager himself to secure twenty-four-hour control. Department heads retain a twenty-four-hour accountability, but existence of shift managers reduces its scope, particularly in the area of vessels, and often too in coal-mining, and such an extension of the managing system seems not inappropriate in hazardous operations when someone is needed to take immediate charge in an emergency. Elsewhere, the resultant problems of confused authority and impaired accountability may outweigh any gain in inter-departmental co-ordination.

Short throughput time calls for a high level of differentiation along the time dimension largely because any disturbance in a part of the system has almost immediate repercussions in the rest of it, and swift corrective action is therefore required. More generally, the greater the extent to which a system's survival demands rapid adpatation to changes, whether in its external environment or internally, the greater the amount of selfcontainment it needs.[8] This implies that the system requires a clear-cut operational goal and the necessary resources to attain it.

Even where the interdependence of sub-systems within the larger system places substantial limits on the self-determination of the sub-systems, it is still desirable to break down the total organization in such a way that each component system has an operational goal or 'whole' task. This not only allows the head of each component command to be held accountable for performance, but also helps people to derive greater satisfaction from their work (cf. 10, p. 34 *et passim*). If task relationships within a particular command are less intensive than relationships that cross the boundaries of the command, there is a strong indication that the command does not have a whole task. The type of differentiation, the level at which it occurs, or the boundaries of differentiation may be discrepant.

To determine the sub-divisions at each level that are most realistic in relation to the groupings and cleavages inherent in task performance, and to break the organization down into commands which allow accountability, is often a matter of common sense. In continuous manufacturing operaton, for instance, adjacent processes have an affinity with one another that requires them to be differentiated only at a low level. Adjacence is determined by the flow of work and their successional dependence.

Major differences in technology can, however, obscure appropriate differentiation. In cotton textile manufacture, bleaching, dyeing, and other processes after weaving are for the most part chemical, while the processes up to and including weaving are not. Sizing, which occurs just before weaving, is an exception. In a composite

[8] March and Simon make much the same point (9, p. 193; also pp. 159 and 169). They also emphasize that 'if there were not boundaries to rationality, or if the boundaries varied in a rapid and unpredictable manner, there could be no stable organizational structure' (pp.170-1).

mill performing all these operations it is not uncommon to group sizing with the post-weaving chemical processes, because of the technological affinity. But the flow of work is from warping to sizing to weaving to bleaching to dyeing, etc., and the grouping of non-consecutive operations (for example, sizing with bleaching) into one command does not provide a whole task (see Figure 6). On these grounds it is contra-indicated.

Territory is an important variable here. Usually each process has its own territory. Grouping of non-consecutive processes means that the territory of the group may be discontinuous, other processes forming enclaves within it. When the layout is planned in such a way that material flows smoothly from one operation to the next, with minimum handling, then grouping of consecutive processes into one command creates a consolidated territory. The sharp territorial boundry—for example, between one building and another—is generally more relevant then any technological affinity between processes that are territorially remote and not sequential. Poorly planned layouts are not only inefficient from the point of view of material handling but also create organizational difficulties. Suppose, for example, that there are three consecutive processes, P1, P2, and P3; and that P1 and P3 are located in one building while P2, the intervening process, is in another building some way off. Whereas the order of operations inherent in the task indicates a closer relationship between P1 and P2 and between

FIGURE 6A "UNNATURAL" TECHNOLOGICAL GROUPING OF NON-CONSECUTIVE PROCESSES IN A CONTINUOUS MANUFACTURING OPERATION

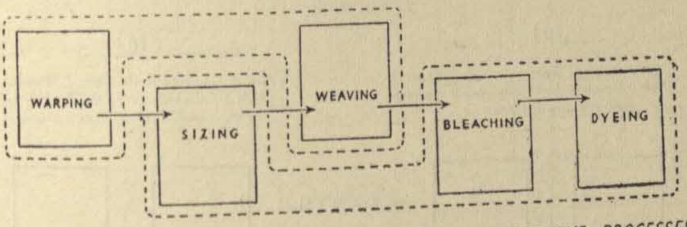
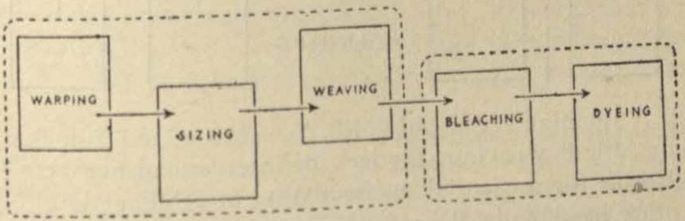


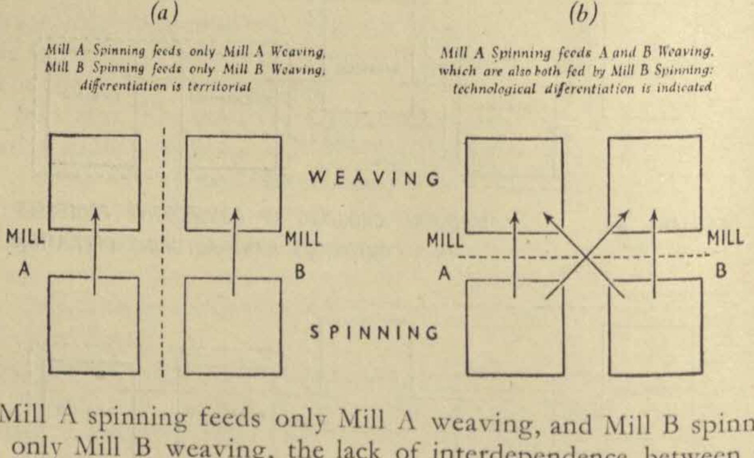
FIGURE 6B "NATURAL" GROUPING OF CONSECUTIVE PROCESSES IN A CONTINUOUS MANUFACTURING OPERATION



P2 and P3 than between P1 and P3, propinquity in this case may well modify the task relationships. Geography here is to some extent incompatible with effective task performance. Inclusion of P1 and P3 in one command that excluded P2 would be consistent with the territorial breakdown but not with the sequence of task performance: it would correspond to the 'unnatural' grouping of Figure 6A. Combination of P1 and P2 in one command and exclusion of P3 would conform to the operational sequence but would conflict with territorial affinity. As we have seen, a common territory is a most compelling factor in group solidarity, and when it is not in harmony with the operational sequence organizational difficulties almost invariably arise.

Re-examination of an existing complex organization often shows that the higher levels of differentiation do not always correspond with the deepest 'natural' cleavages and reveals alternatives that have previously been overlooked. One not uncommon choice occurs when a sequence of processes is duplicated in two neighbouring factories. The question is whether to give precedence to technological or to territorial differentiation. In textiles, technological precedence would imply combining a given group of processes in •both mills into one command, inter-mill differentiation occurring at a lower level. A simplified example is given in Figure 7(a).

FIGURE 7 *TERRITORIAL AND TECHNOLOGICAL DIFFERENTIATION*



(a)

Mill A Spinning feeds only Mill A Weaving, Mill B Spinning feeds only Mill B Weaving, differentiation is territorial

(b)

Mill A Spinning feeds A and B Weaving, which are also both fed by Mill B Spinning: technological diferentiation is indicated

If Mill A spinning feeds only Mill A weaving, and Mill B spinning feeds only Mill B weaving, the lack of interdependence between the two mills calls for territorial differentiation at a higher level. When, on the other hand, as in Figure 7(b), some cross-feeding also occurs, the cleavage between the two mills may be less significant than the cleavage between A + B spinning and A + B weaving, in which case technological differentiation could take precedence. The more spatially separated the two mills are, the greater the extent to which territory, rather than technology, will become the unifying factor. (And, of course, separation reduces the practicability of cross-feeding.)

Another common high-level choice is between two kinds of technological differentiation—the so-called 'functional' differentiation into purchasing, manufacturing, and marketing, or differentiation into product units, each unit managing its own functions. This is represented in Figure 8. Self-contained product units are more appropriate when there is little overlap between them, especially in the manufacturing processes and in markets. Separate factories reinforce such an organization by adding a territorial component to the technological dimension.

Management of a command is easier if the sizes of sub-commands within it are roughly equal.[9] Inequality creates disequilibrium between the sub-commands; this has to be compensated by strengthening the managing system. The need to equalize commands may involve combining two or more operating systems into one. If, for example, there are four factories, A, B, C, and D, and C and D are much smaller than A or B it may be possible to include C and D in one command.

FIG. 8A *SELF-CONTAINED PRODUCT UNITS*

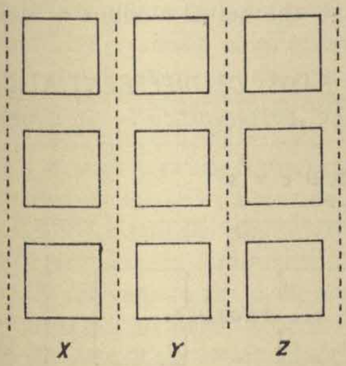
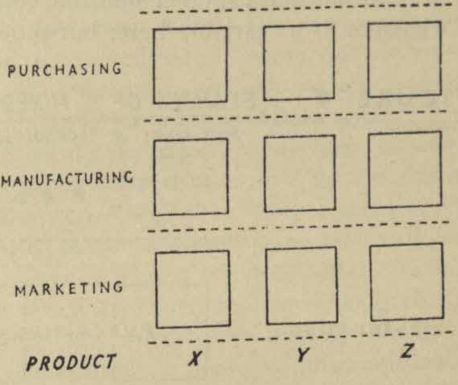


FIG. 8B *"FUNCTIONAL" DIFFERENTIATION*



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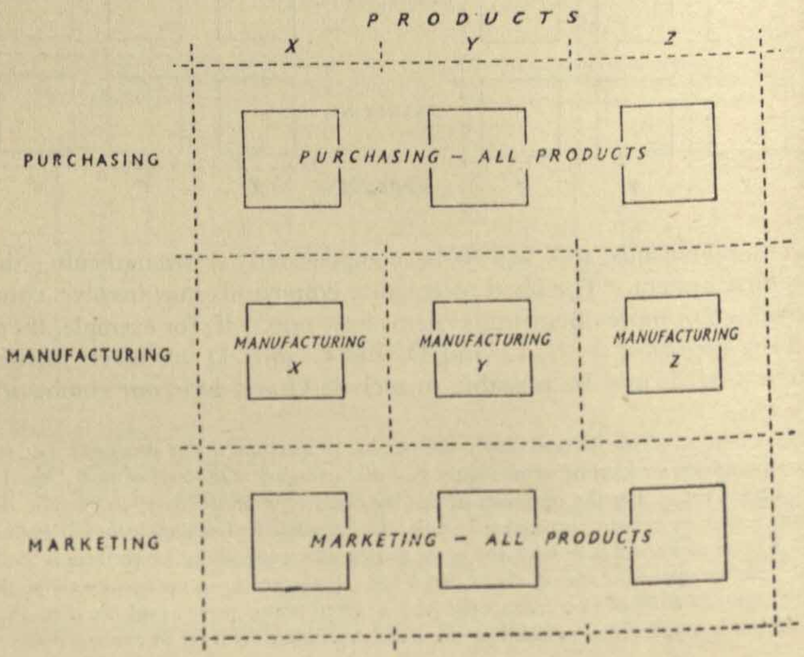
[9] The criterion of size is not simply the number of persons in the command, but the total responsibility or level of work required of the manager. On 'level of work,' see Jaques (7 pp. 44 ff.). For the purposes of this argument it is unnecessary to examine the difficulties that have been encountered in developing effective techniques for job evaluation. We are concerned here with the more glaring differences about which there is likely to be intuitive agreement among those concerned. Disagreement or uncertainty about the relative levels of work of two managerial jobs is often presumptive evidence that they are sufficiently equal to be included at the same organizational level in one command.

Compromises for the sake of equalization may also entail mixed methods of differentiation in the same command. Figures 8(a) and 8(b) illustrate two ways of differentiating an organization within which three products are manufatured and sold. Figure 9 shows a third possibility: a common purchasing unit feeding three separate manufacturing units, which apply a common marketing unit.

Whenever commands can be equalized only by creating boundaries that do not conform to the task structure, management has to choose between two sources of reduced efficiency. The amount of additional co-ordination and control required by each alternative—unequal commands and unrealistic boundaries—has to be assessed.

A comparable difficulty often arises where an organization contains a large number of technologically similar units which are territorially differentiated from one another and between which there is little or no direct interdependence. Shops in a retail chain or the 'beats' of travelling salesmen are typical examples. The less the interdependence and interaction among them, the larger the number of such units that can be included in a single command, and thus the flatter the hierarchy. Delegation is a variable here: but though the actual amount of dele-

FIGURE 9 *EXAMPLE OF A MIXED BASIS OF DIFFERENTIATION: TWO KINDS OF TECHNOLOGICAL DIFFERENTIATION IN ONE COMMAND*



gation can vary considerably, it is clear that maximum delegation is possible where interdependence is least. However, unless delegation is carried to the extreme of abdication, there is at some stage a limit to the number of subordinates who can be directly accountable to one superior. No matter how much staff assistance he has, some form of direct communication between the superior and each of his immediate subordinates must be maintained—and the superior is one person, with limited time. Short lines of communication are generally more efficient, but not if they are allowed to become too tenuous, and there comes a point where a thicker line through an intermediate level is more efficient than a tenuous direct line.

The decision to establish an intervening level of management immediately creates the problem of how to group the units into larger commands. Each unit has a clear-cut whole task and the overall—perhaps nation-wide-organization has a clear-cut task, but there may be no intermediate grouping whether intrinisic to task performance or not. Propinquity is not enough. Often in fact such intermediate commands are not 'systems' at all, but merely aggregates. They have no unique 'whole' task to integrate them. Boundaries are dictated by extrinsic administrative convenience. Interaction between individual units—or absence of interaction—is just as pronounced across the arbitrary territorial boundaries as it is within them. The intermediate managers will frequently be perceived by their superior as a barrier between himself and their subordinates, and by the subordinates as a barrier between themselves and their proper superior.[10]

To the extent that the interposed commands have some task validity, this problem is diminished. (Organizational devices which are not really relevant to the task, and which are designed merely to give the boundaries an illusion of validity, are unlikely to be very effective.) In the case of the retail chain, for example, a group of stores might be linked to a regional supply depot and distribution system. Regional commands in a marketing organization might be reinforced by genuine regional differences in patterns of consumption, and therefore in the techniques of selling. Alternatively, the administrative need for the intermediate level may be eliminated by reorganization elsewhere. If the primary selling unit, for instance, is changed from an individual salesman to an internally led group of salesmen covering a larger territory, the number of units to be managed is greatly reduced.

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[10] The decision to create a new level of management involves, of course not only the appointment of additional managers, but re-examination and possibly redeployment of control and service functions and probably changes in the quantum of delegation. However, the tendency for the intervening level to be experienced as a barrier to communication and to effective task performance is directly related to its irrelevance to the task structure and is not primarily a function of any changes in delegation and control that may have occurred at the time the level was interpolated.

To sum up, therefore, any production system, complex or simple, can be defined along the dimensions of territory, technology, and time. A large system is broken down into progressively smaller systems along one or more of these dimensions at each level. The smallest systems are sometimes co-extensive along one or even two dimensions with the overall system, but more often in a manufacturing organization they are shorter along all three dimensions. Each component system, however, has boundaries that serve to separate it from parallel systems, and also boundaries that form part of the higher-order system boundaries. Work-oriented relations crossing the former boundaries should be more intensive than those that cross the latter; if not, it can be inferred that and inappropriate basis of differentiation has been adopted and that the efficiency of the total system is less than optimal.

PART III: INTERNAL DIFFERENTIATION AND PROBLEMS OF MANAGEMENT

Where a complex production system is differentiated into sub-systems, the total task is also broken down into sub-tasks associated with these sub-systems. As Rice has pointed out, such a hierarchy of tasks may often lead to situations where 'decisions taken within one component system which are consistent with its primary task may appear irrelevant or even harmful in a system of a different order' (10, p. 228). Differentiation into sub-systems threfore throws up a managing system which has the reintegrative function of seeing that the constituent tasks of the sub-systems are so performed that they add up to the overall task of the system as a whole.

It is suggested here that the way in which a task is broken down—in terms of the dimensions along which the sub-systems are differentiated and in terms of the intrinsic interdependence between them—is a major determinant of the kind and quality of management required, including the kinds of control mechanisms that will be appropriate. Fundamentally, of course, the dimension along which the system is differentiated at a given level is the dimension along which the major controls have to be exercised to secure reintegration.

Differentiation by territory, technology, and time, singly and in combination, can at any one level take seven different forms—three one-dimensional, three two-dimensional, and one three-dimensional. These are set out in Figure 10. Multi-dimensional differentiation can be reinforcing, cross-cutting, or mixed, though the examples given in Figure 10 are all of reinforcing differentiation: that is, at the level of differentiation in question, each component system is differentiated from every other along both the named dimensions. Examples of cross-cutting and mixed differentiation could also be added.

Figure 10

The Seven Basic Forms of Differentiation at one Organizational Level: The Examples of Two- and Three-dimensional Differnetiation Given Are of Reinforcing Type. Brief Notes on these Examples Are Given in the Text

Differentiated Dimensions	*Undifferentiated Dimensions*	*Examples*
1 Territory	Technology and Time	(a) Separate sections within a factory, or separate factories, making same product (b) Marketing organisation; chain of retail stores
2 Technolgoy	Time and Territory	Shipbuilding
3 Time	Territory and Technolgy	Typical multi-shift structure in process and other industries
4 Territory and Technolgy	Time	(a) Quasi-independent product units (b) Consecutive manufacturing operations
5 Technology and Time	Territory	Longwall coal-mining
6 Time and Territory	Technology	Mechanized road-making with shift working
7 Territory, Technology, and Time	..	Milk: collection; processing and bottling; and delivery

Types of task dependence have been classified in some detail by Herbst (4) and Emery (1). For present purposes it is relevant to consider that extent to which, at a given level of differentiation, the component systems of a large system are *co-dependent* on supplies, equipment, and services, and *interdependent* for the attainment of the end-result or goal of the larger system. One or both of these types of dependence may be present. Emery points out that interdependence may be simultaneous or successional, and that successional dependence may be further classified as cyclic, convergent, or divergent. Distinctions can also be drawn between simple and complex dependence and between reciprocal and non-reciprocal.

If the differentiation variables were separately considered in relation to all the dependency variables, the resultant number of combinations would be enormous. Here it will be sufficient to examine the three basic differentiation variables in a little more detail and to discuss a few models that occur fairly frequently in industry. From these the implications of other models can be inferred.

There is one other respect in which the present discussion is restricted. While the basis on which sub-systems are differentiated and the nature of their dependencies are the internal system elements that create a particular pattern of demands on management, it is also a function of management to mediate in certain ways between the system and its environment (which may include successively larger systems of which it is a part), and environmental factors will inevitably impose certain other demands. Such factors, for example, may call for additional control mechanisms within the system. The more complex and diverse these environmental factors are, the greater the number and variety of control and service functions likely to be differentiated within the managing system, and the greater the consequent complexity of intra-system relationships. Here, however, environmental factors are held constant and attention is focused on internal factors relevant to the relationships of a manager with his immediate subordinate group.

DIFFERENTIATION BY TERRITORY

It is characteristic of operating systems differentiated from one another only along the territorial dimension that the output of the total system to which they belong is the added sum of the outputs of the constituent systems. Output from one system can be high, low, or even absent without directly affecting ouput from the others. In other words, where differentiation is only territorial, interdependence is minimal.

The extent to which the systems are co-dependent—on a single source of supplies, for example, or on centralized service functions—can vary considerably. Spatial segregation can be an important factor here, though not necessarily a determining one. To take the examples given in Figure 10, if the territorially differentiated units are neighbouring sections in the same factory—for example, the series of groups of workers in groups of looms in the textile mills described by Rice (10)—they are likely to draw their input from the same source and to be jointly dependent on a number of centralized services. If, however, the units are separate factories making identical products in different parts of the country, their co-dependence may well be less. Canneries and other food-processing plants are often dispersed in this way in order to be close to agricultural sources of supply. Decentralized control over input is practicable in such cases but is less appropriate where the factories (perhaps dispersed to be close to their markets) share a common and limited source of supply. Co-dependence may also extend to output: the smaller the fluctuation of output permissible in the total system, the greater the centralized control over the outputs of the constituent systems.

Putting it in another way, we can say that where a unit is differentiated into territorial sub-units, the individual sub-units and the total unit are the same 'length' along the input-output dimension. The constraints on procurement of input and on disposal of output that operate on the whole unit will place upper limits on the autonomy that can be given to the sub-units.

Some of the problems that arise when territorially differentiated sub-units have had to be created only because of the size of the total command have been discussed in Part II. However, in other cases, so long as the territorial boundaries conform to the reality of the task structure and so long as sub-unit performance can be measured separately, this is one of the easiest kinds of command to manage, especially if the sub-units are roughly equal in size. Because the operations of his subordinates are not interdependent, the superior is not concerned with maintaining collaborative relations between them. Indeed, competitive relations are often more appropriate. Their homogeneity makes comparisons straightforward and a highly productive sub-unit can be used as an example and pace-setter for the others. Subject to the external constraints on autonomy, substantial delegation is possible, which means that a fairly large number of units can be included in one command, producing a flat hierarchy.

One practical difficulty that sometimes arises in such a command, however, is that the competitive situation gets out of hand. The superior may become so involved in resolving problems of real or imagined incompatibility between the subordinates that he loses sight of the primary task of the system. The subordinates for their part are liable to seek short-term competitive advantages that may be detrimental in the long run; or alternatively they may go into collusion to protect themselves from competitive stress by establishing safely attainable norms. The common restrictive practices in industry and commerce are special cases of this form of organization.

There is another management problem that may occur in manufacturing units. This is the tendency for the sub-units to develop an 'individuality' that is based on more than their territorial differentiation from one another. Here we are not concerned with the general tendency of groups to develop a structure and culture that apparently transcend what is needed for attainment of their overt goals. We are concerned more specifically with a tendency to supplement territorial differentiation by technological differentiation. This is pace-setting of a special kind. In a manufacturing operation such as weaving identical machinery may be used to turn out several varieties of one product. Even though all varieties are spread equitably among all sub-units, individual sub-units may develop a special proficiency in some. They acquire what Selznick has called a 'distinctive competence' (12). This distinctive competence may be encouraged, perhaps almost accidentally, by assigning more of these varieties to the sub-units in question. Such specialization is the beginning of technological differentiation. Management needs to be alert to such incipient changes and to recognize their implications. It is not simply a question of deciding whether the gains from specialization—probably in improved efficiency and quality—outweigh the disadvantages of reduced flexibility in production planning. Different methods of management are required: competition ceases to be an appropriate control mechanism when the sub-units become heterogeneous. In the extreme situation, the varie- ties, by ceasing to be interchangeable, acquire the status of separate products and the territorial differentiation becomes secondary to what is, in effect, technological differentiation between product units. Management of such units is discussed in the next section.

DIFFERENTIATION BY TECHNOLOGY

In cases of differentiation by technology, the notion of distinctive competence is very much present. The organization is built up around clusters of specialized skills and often specialized equipment too. Members of a sub-unit that is differentiated from others along the technological dimension derive solidarity from their distinctive competence, often by exaggerating its distinctiveness. Preservation of that distinctiveness may overcome the primary task of the sub-unit. Management of a unit in which the sub-units are differentiated, and therefore have to be reintegrated, along the technological dimension, involves using the specialized contributions of the sub-units to perform the primary task of the whole. To achieve this, the solidarity that the sub-units derive from distinctive skills should be sufficient for them to maintain their viability as separate systems, but not so great that they lose sight of the total task of the larger unit. To strike such a balance is no easy task. Perceived threats to the integrity and distinctiveness of sub-unit skills mobilize the energies of sub-unit members towards preservation of the sub-unit at the expense of the unit as a whole. Closed-shop movements in departments of automobile factories and demarcation disputes in shipyards are familiar examples.

Operating systems are seldom differentiated from one another by technology alone. Perhaps the nearest approximation is in enterprises such as ship-building where what is being made is also the territory of task performance. Even in ship-building, however, there is some supplementary differentiation by territory and time; certain jobs have to be done elsewhere in the yard and certain jobs on the ship itself cannot be started until preceding jobs are complete. The occupational groups at work on the ship at any one time have shifting and overlapping territorial boundaries and it is along the technological dimension that they have primarily to be co-ordinated. Conventional longwall coal-getting involves differentiation by both territory and time (5, 13, 14). The team working on a particular section of the coal-face over a 24-hour period is sub-divided into shifts that are distinguished from one another both by the times they work and by the kinds of task they do. Reinforcing differentiation by technology, territory, and time may occur in a milk business: milk is collected from the farms in the afternoon and evening and brought to the central depot; there it is processed and bottled during the night; and next morning it goes out on the delivery rounds.

In industry, technological differentiation is commonly accompanied by territorial differentiation. (The word 'department,' for example, often carries both connotations.) Where the two are combined in this way, the former distinction always seems to be primary: territorial differentiation supplements and reinforces the technological. To some extent the combination also facilitates co-ordination by giving the technological groupings the security of a clear-cut physical boundary—contrasted with the vague and shifting boundaries of the shipyard.

Where the technological differentiation is primary, the nature and extent of co-dependence and interdependence among the sub-units concerned can vary. It will illuminate the kinds of problem that can occur in management if we consider two extreme—but nevertheless common—models, one with little or no interdependence and one in which interdependence is substantial.

The self-contained product units of Figure 8(a) are an example of the former. Co-dependence tends to be minimal when the units are spatially remote, and not merely manufacture different products but market them separately as well. Their heterogeneity and their lack of interconnectedness make it difficult for the superior to weld the heads of the subordinate units into a group and to compare their performance. Centralization of controls and services increases their co-dependence, but probably reduces the extent to which the individual units can exploit their distinctive competence. Decentralization permits the units to respond more quickly and creatively to relevant environmental changes.[11] This capacity is encouraged to the full if the manager of the total command delegates really substantial authority to the product units, letting them operate virtually, or actually, as separate companies. Comparisons can then be made in terms of profits. In other words, a common denominator is found at a higher level of abstraction, which makes the technological distinction less relevant. In general, the fewer the intrinsic or imposed dependencies between technologically differentiated sub-units, the greater the extent to which efflorescence of sub-unit distinctive competence can be not merely permitted but encouraged as contributing to overall task performance of the total unit.

Where units manufacturing different products share common organizations for purchasing and marketing, there may be first-order differentiation into purchasing, manufacturing, and marketing, and second-order differentiation of the manufacturing system into product units. Alternatively, the two levels of technological differentiation can be compressed into one (cf. Figure 9). The purchasing unit, the marketing unit, and (say) three product units all become co-ordinate systems within the larger system. This is illustrated in Figure 11. There is no direct interdependence between the three manufacturing units A, B, and C, but there is substantial co-dependence between them resulting from the pattern of successional interdependence: D—A—E, D—B—E, and D—C—E. The effects of this relatively complex pattern on relationships are not always predictable. The manufacturing units may be drawn closer together, into a manufacturing sub-group; but against this conflicts may arise between the manufacturing units over relationships with purchasing and marketing. The head of one manufacturing unit, for example, may try to 'capture' the head of purchasing. The management problem is to control these groupings and cleavages and to use them constructively. Pressures from the manufacturing sub-group may make purchasing and marketing more effective; on the other hand, if there is too much pressure backwards from marketing the manufacturing units may go into collusion to keep performance standards down.

The organization just described is in effect a combination of our two extremes of technological differentiation. The minimally interdependent product units have already been discussed, and we now have to consider the model of high successional interdependence. This is illustrated in Figure 12. A feeds B; B feeds C; and C's output is the output of the total command. Although the tasks are carried out simultaneously, the flow of material places them in a temporal order.

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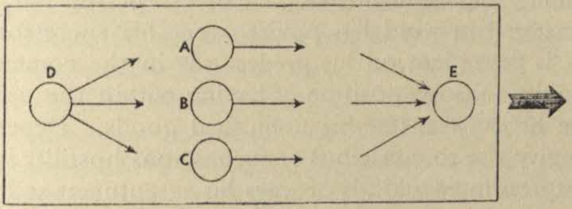
[11] March and Simon suggest that interdependence and co-dependence restrain innovative activity: 'The greater the interdependence among sub-units and the higher the dependence of line units on auxiliary units, the less vigorous will be the innovative activity of the line units; (9, p. 198).

This is an extremely common organization of production systems at many levels. In manufacturing operations, for example, it occurs where material passes consecutively through a series of processes. At a higher level, the A, B, and C of the diagram may be the purchasing, manufacturing, and selling operations. What is said here primarily concerns manufacturing operations, but much of it is relevant to other kinds of operation besides.

FIGURE 11 *DIFFERENTIATION BY TECHNOLOGY [AND TERRITORY]*

CO-DEPENDENT MANUFACTURING OPERATIONS (A, B, AND C). EACH SEPARATELY INTERDEPENDENT WITH COMMON PURCHASING (D) AND MARKETING (E) OPERATIONS. (TWO DIMENSIONS OF TECHNOLOGICAL DIFFERENTIATION: cf. FIGURE 9)

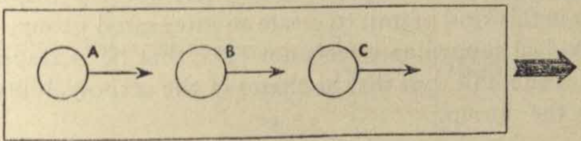


KEY TO FIGURES 11 - 13

○ SUB-UNIT → FLOW OF WORK ➡ OUTPUT OF THE TOTAL COMMAND

BOUNDARY OF THE TOTAL COMMAND

FIGURE 12 *DIFFERENTIATION BY TECHNOLOGY [AND TERRITORY] SUCCESSIONAL INTERDEPENDENCE*



There are five conditions under which management of this kind of command is facilitated. First, the unit as a whole should have clear-cut territorial boundaries and if possible the sub-units within it should be territorially, as well as technologically, differentiated from one another. Secondly, if the unit as a whole is technologically differentiated from neighbouring units, the technologies of its constitutent sub-units should have more in common with one another than with units outside. Thirdly, the output of the unit as a whole (and if possible the output of the individual sub-units) should be clearly measureable. Fourthly, the sub-units should be reasonably equal as commands. Finally, the sequence of operations should be unbroken : that is to say, material should not pass from A to B and then undergo a further process outside the organization before going on to operation C (cf. Figure 6). Interdependence is to some extent reduced if there are banks of part-processed materials between A and B and between B and C: a breakdown in one sub-unit does not then immediately affect following sub-units.

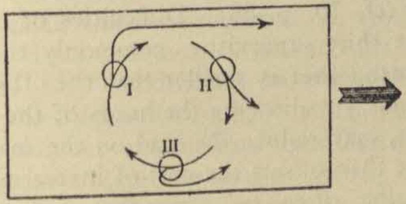
Even when all these optimal conditions obtain, there remain certain management problems inherent in this kind of organization. One characteristic is the existence of overlapping consecutive pair relationships among the subordinates. Each, except the last, supplies unfinished material to—and has power over—his successor; each, except the first, is dependent on his predecessor in the command. The last man is in the unhappy position of having within the unit no successor to whom he can transfer his unfinished goods. Dependence always tends to give rise to conscious or unconscious hostility and resentment. B may express in two kinds of ways his resentment at dependence on A: he can complain about the quality of the material that A feeds to him; and, more seriously, he may unconsciously deal with his grudge by doing poor work and so sabotaging the output of his successor. In other words, he compensates for his dependence by misusing his power. The last man, in order to compensate for his lack of power over a successor within the command, may even unconsciously sabotage the output of the group as a whole. It is therefore the major task of the manager in this kind of unit to create an integrated group, within which the individual subordinate feels not only that he is responsible for the task of his sub-unit, but that he shares in the responsibility for the total task of the group.

DIFFERENTIATION BY TIME

In the ordinary multi-shift situation, where the sub-units are differentiated from one another only by time and share a common territory and a common technology, their co-dependence is considerable. For example, maintenance failures on one shift affect the others. Generally this co-dependence is accompanied by a circular form of successional interdependence: each shift not only completes certain operations, exporting the material outside the total unit, but also passes on some semi-finished material to the next shift for completion. This three-shift pattern is depicted in Figure 13. Throughput time is a major determinant of interdependence. The longer the throughput time, the higher the proportion of semi-finishedto finished material at the end of each shift. Also, the less likely it is that individual shift performance, in terms of quantity and quality, can be measured precisely. Continuous operations of process industries provide an obvious example, but the production lines of the engineering industry also contain at any one time components in various stages of completion. Another factor that reduces the clear-cut self-containment of the shifts in the most highly automated industries, where shift working is most prevalent, is that the functions of so-called 'production workers' have increasingly been taken over by the machines themselves. The task of the workers is to monitor and maintain and the consequences of things they do or fail to do are often not immediately and clearly visible; the benefits or otherwise may fall upon succeeding shifts.

Furthermore, in most industries—indeed in the society at large—night-work is considered unnatural; a certain stigma attaches to it. Men who work while the rest of the world is asleep tend to feel cut off from society—and no doubt some select night-work for this reason, and may even become neurotically addicted to it. This is not the place for a discussion of the psychology of shift work: the point to be emphasized is that night-shifts often have a distinctive 'atmosphere' of their own.[12] This is particularly true where a group of workers is permanently on night-shift. Night-shifts are less differentiated in this particular respect in enterprises such as chemical plants, steel plants, or power stations, where continuous operations are dictated by the basic nature of the technology, and also where all shifts rotate.

FIGURE 13 *DIFFERENTIATION BY TIME: TERRITORY AND TECHNOLOGY UNDIFFERENTIATED: CIRCULAR INTERDEPENDENCE*



It is clear that differentiation by time calls for positive managing skills to maintain the tempo and quality of work and to prevent the circular dependence from becoming a deteriorating cycle. The management problems inherent in this model make it important to eliminate avoidable complexities. Many of these stem from a failure on the part of management to conceptualize second and third shifts as discrete systems. Outside industries where continuous operations are intrinsic to technology, the second and third shifts have generally been introduced in order to supplement production from single-shift working without increasing capital investment; and the notion that they are supplementary tends to be perpetuated not only in management attitudes but also in organization. Rice has given a good example of this kind of situation in a textile mill,[13] and also indicated that acceptance of the organizational consequences of three-shift working can lead to higher productivity and improved quality (10).

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[12] Often, too, the level of attention is lower and mistakes are more numerous. Accidents may be fewer: cf. Hill and Trist (6).

An avoidable complication occurs, for example, when the overall head of the three shifts has himself the additional role of first-shift supervisor. The twenty-four-hour responsibility of the overall head naturally cannot be discharged if he is regularly tied for eight hours to one shift only. A separate first-shift supervisor is therefore necessary. Related to this is a tendency to confuse first-shift control and service functions with headquarters functions, usually because office hours more nearly coincide with first-shift hours than with those of other shifts. The first-shift supervisor may be given responsibility for such functions as pertain to all shifts, or alternatively—and less frequently—certain services that are decentralized to the second-and third-shift supervisors are, for the first shift, retained under headquarters' control. It is appropriate either to centralize such functions fully under the head of the total command or to decentralize them equally to his three subordinates, but not to delegate them to one or two subordinates only (cf. 10, p. 46). Difficulties of co-ordination are also increased if one shift supervisor—commonly the third shift—has an operating command that is smaller than the other two. Equalization of shift commands, by allowing the heads of the three shifts to collaborate as equals, may reduce the load on the managing system to an extent that more than offsets the cost of increased third-shift working. (This is not possible, of course, where there are wide fluctuations in the load—for example, in some engineering firms—and a 'spill-over' night-shift is required irregularly in order to absorb these fluctuations and to maintain a steady day-shift load.)

The head of this kind of command therefore has to take specific precautions appropriate to the pattern of differentiation and interdependence; he needs to be aware of his twenty-four-hour responsibility, to attend shift hand-overs as often as possible, to avoid delegating either too much or too little to the first-shift head, and to avoid giving too small a command to the third-shift head. Meetings of the superior with his subordinates as a group help to emphasize the complementary contributions of the shifts to the total task of the command. Meeting the subordinates only individually makes it more difficult to ensure that all three shifts work together coherently. There are possibly advantages in a form of shift rotation which periodically alters the order of dependence of the shifts.

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[13] '. . . . . Supervision on the third shift had never been as good as on the other shifts. It had been unpopular with management as well as with workers. In consequence, the most junior supervisors had been posted to it. Not unnaturally the combination of least experienced workers and most junior supervisors had succeeded in proving correct those who believed that third shifts were not worth while' (10, p. 176).

Where there are only two shifts, although the general problems are very much the same as in the three-shift situation—especially the sharing of territory and equipment—the reciprocity makes equilibrium easier to sustain because dependence and power balance each other. There is one drawback in having only two shift heads reporting to one superior: it is too small a command. Co-ordination and control of two subordinates generally give the superior too little to do. He may tend to bypass his immediate subordinates, withdrawing authority and responsibility from them. Consequently it may prove desirable to combine at the same level differentiation by time with cross-cutting differentiation by territory and/or technology. As was pointed out in Part II, however, it is unlikely that the task structure will be such that interrelatedness along the time dimension will be equal to interrelatedness along the territorial/technological dimension. In all cases of cross-cutting differentiation, where two dimensions of differentiation are compressed into one level, formation of sub-groups is to be expected along one dimension or the other. It has to be realized, however, that such groupings have no formal identity in this kind of structure, so that controls and services must be either fully centralized or else fully decentralized to the individual sub-units.

Though the few models discussed here only touch the fringe of all the possible variations, they serve to indicate the different kinds of demand placed on management according to the types of boundary that separate the sub-units and according to the type and degree of dependence between them. Consideration of these factors may be relevant to the selection, training, and placement of managers. Though it is probably a little far-fetched to suggest that management of territorially differentiated units requires a special kind of person, it is certainly clear that techniques of management appropriate in that situation cannot effectively be transplanted into a situation where the units are differentiated along other dimensions and the patterns of co-dependence and interdependence are more complex.

SUMMARY

Any production system can be defined along the three dimensions of territory, technology, and time, which are intrinsic to the structure of the task of the system. Task performance is impaired if sub-systems within a system are differentiated along any other dimensions than these.

In a simple production system, management is inherent in internal relationships. A prerequisite of transition from a simple to a complex system, with a differentiated managing system, is the emergence of sub-systems with discrete sub-tasks. Simple systems vary in their 'resilience'—the capacity to resist forces towards transformation into a complex system, while remaining viable and efficient. The resilience of a simple system is increased if there is mobility of individuals between sub-systems associated with sub-tasks and if the sub-systems themselves are closely interdependent. For any expanding or changing simple system, however, there is an optimum stage for transition to a complex system: task performance suffers if the transition is premature or belated.

A large, complex production system, such as a multi-shift manufacturing concern, is broken down into progressively smaller systems along all three dimensions of territory, technology, and time. There are several levels of differentiation. Differentiation along some dimensions occurs at more than one level. Differentiation along more than one dimension can also occur at a single level. The dimensions may then be either at right angles to one another ('cross-cutting'), in which case each component sub-system is interdependent with—and has to be co-ordinated with—some sub-systems along one dimension and some along the other; or the dimensions may be coincident and mutually reinforcing (for example, departments in a factory which are differentiated from one another technologically and also occupy separate territories).

In such a complex system there is sometimes a choice: differentiation along one dimension could occur at a higher level than differentiation along another, or at a lower level. However, the basis of differentiation must not violate the task structure; boundaries should be so located as to associate each command with a 'whole' task, for which the head of the command can be held accountable. If at any level the formal organization is such that task relationships which cross the boundaries of a command are more intensive than relationships within it, there will be a loss of efficiency and/or an expansion of the managing system at that level.

The appropriate level of differentiation by time is related to the throughput time of the process (the interval between input and output). Time differentiation occurs at a low level in an organization with a long throughput time and at a high level when throughput time is short. When a sequence of operations is involved, consecutive operations that are also territorially adjacent are appropriately differentiated at a low level, even though technologically they may be heterogeneous. Operations that are technologically homogeneous but spatially and sequentially separated can seldom be combined into a viable system.

The need to ensure that sub-commands within a command are approximately equal in size and that each has a 'whole' task may entail combining more than one system into one command or adopting mixed methods of differentiation. These needs, however, sometimes conflict.

Differentiation implies reintegration, to ensure that the sub-tasks of sub-systems add up to the total task of the whole system. Within any command, the way in which the task is broken down—i.e., the dimensions along which the constitutent systems are differentiated and the interdependence between the systems—largely determines the kind of management required. Organizational models drawn from industry are used to illustrate this point.

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KAMLA CHOWDHRY AND
VIKRAM A. SARABHAI

Organization for Developmental Tasks : Atomic Energy Commission of India

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INTRODUCTION

IT IS A COMMON observation that understanding of the human factors of growth of institutions has lagged far behind advances in science and technology. Certainly some of the most perplexing and urgent problems of our time are not technological, but human, organizational, social, and political. One way to advance our understanding of the growth of institutions is through a wider sharing of knowledge gained from meaningful experience.

It is in this spirit of sharing the meaning of a comprehensive experience that we present this paper. At one level it is the story of Atomic Energy in India, at another level the story of Bhabha, the great innovator and organiser and yet at another level of the growth of institutions and the introduction of change based on advanced technologies.

We often talk of the imprint of the personality of a man on the organization he had created. Surely, what we are referring to is the manner in which his assumptions concerning the task and the motivations of people are translated into a management system. Decentralization, delegation, reporting and control, evaluation, and motivation are aspects of the management system closely related to the objective of an organization. These also bear the imprint of assumptions which are

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made concerning the task. At one end of the spectrum are certain administrative services, acting on past precedents and traditions providing security and continuity, impersonalized to the extent that if one person is substituted by another, every one knows how the successor will behave and operate under a given set of circumstances. At the other end, there are organizations based on research and development, involving individuals who act on insights and hunches, non-conformists questioning assumptions, innovating and learning. The two extremes require organizations and working cultures which are rather different. Yet many tasks encountered in the contemporary world call for organizations wherein creative thinking and innovation are essential ingredients of survival as well as growth. The diversity of tasks that require to be performed within the governmental frame-work require individuals who are not only sensitive to the needs of the two cultures but can provide a dynamic relationship to the conflicting systems. In this context, the study of atomic energy in India is of relevance, for a culture appropriate to research and developmental tasks was established within the framework of government.

In this paper we shall examine the assumptions which influenced Bhabha's strategy when he created the Atomic Energy Commission, the Department of Atomic Energy, and the Atomic Energy Establishment at Trombay. We shall follow how strategy was translated into organizational structures and administrative practices. Moreover, we shall discuss the implications of his assumptions and strategy indicating their relevance to other organizations and tasks.

APPROACH TO DEVELOPMENT OF SCIENCE[1]

The initial conditions for developing institutions based on modern science and technology are somewhat different in India (and many other developing countries) as compared to the more developed countries. Even though there is a substantial base of those who have a university degree, there is a shortage of competent scientists, technologists, and administrators. Bhabha emphasized that, in India, the first step in building institutions was the training and development of people. In the Tata Institute of Fundamental Research, the first institute Bhabha started in 1944, he brought together a group of young scientists who were given all the facilities and freedom to develop research and to develop "second generation" scientists. From the beginning he was careful not to take scientists away from universities, for he believed this would weaken the universities and consequently any programme of development of scientists in India. He worked towards strengthening the relationship between the Tata Institute of Fundamental Research and the universities.

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[1] This section is largely based on Bhabha's "Science and the Problems of Development," lecture delivered by invitation of the International Council of Scientific Unions, January 7, 1966. (Bombay : Atomic Energy Establishment, Trombay, 1966).

On the other hand, many national laboratories were at that time filling their senior posts with mature scientists from universities. Bhabha said that "the attempt to fill senior posts by matured scientists from outside must inevitably lead to their being taken away from the only institutions which have scientists in some measure, however inadequate, in an underdeveloped country, namely, the universities."[2] He added that this step by the national laboratories had resulted in a weakening of universities by taking away their (universities) most valuable asset.

In starting a new institution Bhabha considered it important to build the organization around people rather than draw an organization chart first and then fill in the vacancies. In discussing the Tata Institute of Fundamental Research, he said :

> No organisational chart of the future development of the Institute was submitted either when it was founded or later, and the philosophy has always been to support ability whenever it is found in the fields of work covered by the Institute. Indeed, the philosophy underlying the founding of the Institute was the same as that underlying the Max Planck Institutes in Germany, namely "The Kaiser Wilhelm Society shall not first build an institute for research and then seek out the suitable man but shall first pick up an outstanding man, and then build an Institute for him."[3]

Two examples are given of building projects and development around people. To quote Bhabha :

> As early as June 1944, Sir A. V. Hill had written to me suggesting that biophysics was a neglected subject in India and that it should be taken under the wing of the Institute. While I agreed with his suggestion, I did not think that it would be wise to embark on this line till someone was found, mature enough to be able to work on his own and build up a group. When however in 1962 my attention was drawn by the late Dr. Leo Szilard to a very promising Indian molecular biologist, it was decided to start work in microbiology, which has since then been growing very satisfactorily. . . . Four Indian radioastronomers had jointly written identical

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[2] *Ibid.*, p. 5.

[3] *Ibid.*, p. 6.

> letters to the Chairman of the University Grants Commission, the Director General of the Council of Scientific and Industrial Research, and to me as the Chairman of the Atomic Energy Commission offering to return to India as a group and establish radioastronomy here, if facilities and support could be given to them. Having ascertained that the members of the group had considerable original work to their credit and were of sufficient maturity to be able to work on their own in India, it was decided to take up radioastronomy at the Institute.[4]

With such an approach only the broad lines of work were laid down and the greatest possible freedom was given to the staff to develop new ideas and fruitful lines of work. Institutions grew on the ability of various groups to expand fruitfully.

Equally important was Bhabha's approach to administration of scientific research and development. He held that it is a fallacy to believe that "we are reasonably advanced in administration but backward in science and technology."[5] He was aware that different tasks and institutions required different types of administrative practices, and that the transfer of government administrative practices, either to industrial enterprises or research and development, produced inefficiencies and lack of morale.

Thus he said :

> The type of administration required for the growth of science and technology is quite different from the type of administration required for the operation of industrial enterprises, and both of these are again quite different from the type of administration required for such matters as the p eservation of law and order, administration of justice, finance, and so on. It is my personal view, which is shared by many eminent foreign scientists, that the general absence of the proper administtative set-up for science is a bigger obstacle to the rapid growth of science and technology than the paucity of scientists and technologists, because a majority of the scientists and technologists we have are made less effective through the lack of the right type of administrative support. The administration of scientific research and development is an even more subtle matter than the administration of industrial enterprises, and I am convinced that it cannot be done on the basis of borrowed knowledge.[6]

Bhabha introduced administrative practices in the Tata Institute of

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[4] *Ibid.*, p. 7

[5] *Ibid.*, p. 12

[6] *Ibid.*

Fundamental Research and later in the Department of Atomic Energy which were alien to established university and government procedures. Scientists and engineers were paid according to their merit and maturity, rather than in terms of organizational position and status. Promotion did not imply handing over charge of one task and going over to another. Positions were created whenever competent people were available for identified tasks. As with personnel functions, Bhabha established for procurement as well as for civil construction procedures in which major decisions were taken by the scientists concerned.

Another factor that was important in Bhabha's approach was to provide to scientists and technologists opportunities of building their own know-how, of minimizing dependence on foreign know-how, and of gaining experience even at the risk of failures. Thus, he said, "the emphasis has been throughout on developing know-how indigenously and on growing people able to tackle the tasks which lie ahead. The generation of self-confidence and the ability to engineer and execute industrial projects without foreign technical assistance have been major objectives."[7] The Apsara reactor with its control system, which was decided to be built in 1965 "was designed and built by our own scientists and engineers in just over a year."[8] Regarding the control system for the reactor, he said, "the important fact remains however that the original control system, even if more cumbersome and less elegant, gave trouble free service for four years and the confidence gained in doing it oneself fully justified the course that had been followed."[9] Similarly in discussing the fuel fabrication plant built by the scientists and engineers at Trombay, he said "the successful production of nuclear grade uranium metal and metallic fuel elements from it at a time when there were only about half a dozen countries in the world producing their own fuel elements added further to the self-confidence of our staff to undertake difficult tasks."[10] To quote further his approach on foreign assistance :

> The recent stoppage of foreign aid has shown our tremendous foreign dependence on a vast variety of materials and equipment, many of which could and should have been produced in the country long before this. We have found that a very large number of them can be produced as a result of the know-how which already exists in scientific organisations here, and steps are being taken to produce these in the country without foreign assistance. The results will show themselves within the next few years, and I have no

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[7] *Ibid.*, p. 8.

[8] *Ibid.*

[9] *Ibid.*

[10] *Ibid.*, p. 9.

> doubt that the confidence which Indian technologists will gain thereby will spread to Indian industrialists and administrators, many of whom, not having any basis for technical judgments of their own, are inclined to play safe by relying on foreign consultancy. Many examples can be given of foreign collaboration resulting in badly engineered plants or technical mistakes, and when such technical mistakes are corrected the foreign consultant benefits from the experience. Whereas, if an Indian scientific or engineering organisation had been employed, the experience gained even from initial failures would have been a gain to the country. The Soviet Union did not hesitate to follow this path. One should also remember that in buying foreign know-how one is paying for an element which covers the cost of research and development done by the foreign consultant, and it is clear that a more permanent benefit would result to the country if this money were made available for supporting research and development in India.[11]

The importance of Bhabha's approach as applied to industrial development is even more significant.

> The steel industry has existed in India since the First World War, and one of the two steel plants was among the largest in the British Commonwealth in the early twenties. Yet, when these steel plants had to be expanded, it was necessary to draw upon foreign consultants and engineering firms to plan and carry out the expansion. When the Government decided to establish a steel plant in the public sector at Rourkela, a German consortium had to be asked to undertake the job. For the next steel plant at Bhilai the same course was followed, this time with Russian technical collaboration. The third public sector steel plant at Durgapur had similarly to be set up with the help of a British consortium, and essentially the same method is being followed with regard to the fourth public sector steel plant at Bokaro. Thus, the construction and operation of a number of steel plants has not automatically generated the ability to design and build new steel plants. Unless powerful scientific, and engineering groups are established during the construction and operation of existing steel plants as a matter of deliberate policy, the dependence on foreign technical assistance will continue and the steel industry will not reach a stage of technical self-reliance. A similar situation exists in almost every other industry.[12]

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[11] *Ibid.*, p. 12.

[12] *Ibid.*, p. 11.

We have mentioned a number of factors which were emphasized by Bhabha. No single factor was decisive by itself. It was the combination and the inter-relatedness of these factors applied consistently that generated the forces of growth in the institutions with which Bhabha was connected.

GROWTH AND ACTIVITIES OF THE ATOMIC ENERGY COMMISSION OF INDIA

ATOMIC ENERGY COMMISSION

Under the terms of the Atomic Energy Act, 1948, an Atomic Energy Commission was set up in August 1948. The Commission, which was a policy making body, was assigned the tasks of surveying the country for atomic minerals, to work and develop such minerals on an industrial scale, to do research in the scientific and technical problems connected with the release of atomic energy for peaceful purposes, to train and develop the necessary scientific and technical personnel for this work and foster fundamental research in nuclear sciences in its own laboratories and in the universities and research institutions in India.[13] The decisions of the Commission were to be implemented through the Ministry of Natural Resources and Scientific Research.

Bhabha was appointed the first Chairman of the Commission. Other members were Dr. S. S. Bhatnagar, Director General of the Council for Scientific and Industrial Research, and Dr. K. S. Krishnan, Director, National Physical Research Laboratory—all eminent scientists and deeply committed to the growth of science and technology in India.

The Commission decided that its first task was to develop scientific personnel that would be needed in future for its activities. It also decided to use existing institutions to do its preliminary scientific work instead of planning at the outset a number of new laboratories. Foremost amongst the institutions used was the Tata Institute of Fundamental Research of which Bhabha was the director. The early history of atomic energy in India is so closely interwoven with that of the Tata Institute of Fundamental Research, where the early work of atomic energy and of training scientists was done, that it has rightly been called "the cradle of India's atomic energy programme." The Tata Institute of Fundamental Research undertook research and later certain administrative responsibilities for the Commission, such as, selection of scientists, purchase of equipment, and stores.

By 1955 it was felt that research and development in the peaceful uses of atomic energy had made such important strides that a greatly expanded programme would be required. The expanded programme would include producing all the basic materials required for the utilization of atomic energy and the building of atomic power stations for producing electric power. The government realized that in order to plan and implement the envisaged programme it would have to modify the constitution of the Commission so as to give it full financial and executive powers. The notification of the government concerning the organization of the Atomic Energy Commission stated:

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[13] *Ibid.*, p. 5.

> These developments call for an organisation with full authority to plan and implement the various measures on sound technical and economic principles and free from all non-essential restrictions or needlessly inelastic rules. The special requirements of atomic energy, the newness of the field, the strategic nature of its activities and its international and political significance have to be borne in mind in devising such an organisation.[14]

In 1958, the constitution of the Atomic Energy was amended to provide it with greater powers. The amended constitution stated:

> a. The Commission shall consist of full-time and part-time members and the total number of members shall not be less than three and not more than seven.
> b. The Secretary to the Government of India in the Department of Atomic Energy shall be the ex-officio Chairman of the Commission.
> c. Another full-time member of the Commission shall be the Member of Finance and Administration, who shall also be ex-officio Secretary to the Government of India in the Department of Atomic Energy in financial matters.
> d. The Director of the Atomic Energy Establishment, Trombay, shall be the third ex-officio full time member in charge of research and development.

Regarding the member for Finance and Administration, it stated :

> The Member for Finance and Administration shall exercise the powers of the Government of India in all financial matters concerning the Department of Atomic Energy. No proposal with financial implications shall be sanctioned without his prior concurrence.

A full-time member for finance and administration was included, because the idea was that this member would be the chief official in the Department for finance and administration. However, it was soon realized that with the given set-up and nomenclature there was confusion as to the responsibility and accountability of the Chairman-cum-Secretary and the Member for Finance and Administration.

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[14] Department of Atomic Energy Resolution No. 13/7, 58-Adm., March 1, 1958.

In 1962, the constitution of the Atomic Energy Commission was again amended largely to clarify the role of the Member for Finance in relation to the accountability of the Chairman-cum-Secretary of the department. The revision provided as under :

(a) Instead of having a full time Member for Finance and Administration, one of the members of the Commission was to be the Member for Finance and he was to exercise the powers of the Government of India in financial matters concerning the DAE except in so far as such powers had been or are in future conferred on or delegated to the Department.

(b) The Chairman could also authorise any member of the Commission to exercise such of his powers and responsibilities as he may decide.

Thus, it was amply clarified that the Secretary was responsible for the total administration of the Department and that the Finance Member was to advise only on matters not delegated to the Department. It was also considered unnecessary to have a full time member for Finance.

The size of the first Commission was three members. With the first amendment, the member for finance was added, and later Mr. J. R. D. Tata and Dr. Vikram Sarabhai were added. At no time the Commission consisted of more than five members. In early 1966, the Commission was as under :

Dr. H. J. Bhabha	(Chairman)
Mr. S. Jagannathan	(Member for Finance)
Mr J. R. D. Tata	
Mr. Dharma Vira	(Cabinet Secretary)
Dr. Vikram A. Sarabhai	

Bhabha being also Director of the Atomic Energy Establishment, Trombay, there was no separate member for Research and Development.

(Some important landmarks in the development of the Atomic Energy Commission in India are given in Appendix I.)

In reviewing the developments of atomic energy in India, three phases can be identified. The first phase from 1944 to 1954 was the training of scientists, and the starting of scientific groups under the leadership of competent scientists who could with appropriate facilities and "autonomy of work" develop an excellent work team. In this phase the Tata Institute of Fundamental Research played a significant role.

The second phase could be broadly identified from 1954 to 1962. It marked the growth of the Atomic Energy Establishment at Trombay with emphasis on problems of technology. Three research reactors were built, and simultaneously the prospecting of atomic minerals was pursued energetically through the Atomic Minerals Division. In this phase, research and development were important, leading to pilot plants processing uranium ore, fabricating fuel elements, manufacturing electronic instruments, developing nuclear engineering for reactors, building a plutonium extraction plant, and establishing other facilities at Trombay.

The third phase which commenced around 1962 involved a logical continuation of the earlier development. This phase was the utilization of knowledge and skills acquired. Emphasis was placed on the contribution of the Department of Atomic Energy to economic development through atomic power projects and public sector industries based on the technology developed at Trombay. Trombay was considered a nursery where new developments would be continually nurtured and other sites in the country were identified where know-how and processes could be commercially established.

In the following sections, the role and management system of the Department of Atomic Energy with special reference to the Atomic Energy Establishment at Trombay are outlined.

DEPARTMENT OF ATOMIC ENERGY

By 1954 the activities of the Commission had so expanded that the government decided to set up a separate Department of Atomic Energy. The Minister in charge of the Department was the Prime Minister, at that time, Mr. Jawaharlal Nehru. For administrative convenience and close contacts with the main scientific activities which were in Bombay, the Department's headquarters were located in Bombay instead of Delhi. The Secretary of the Department was also the ex-officio Chairman of the Commission.

The research units, projects and other enterprises for which the Department of Atomic Energy was responsible in 1966 are given below:

1. Atomic Energy Establishment, Trombay
2. Tarapore Atomic Power Project
3. Rajasthan Atomic Power Project
4. Madras Atomic Power Project
5. Jaduguda Mines Project
6. Thumba Equatorial Rocket Launching Station

7. Space Science and Technology Centre
8. Experimental Satellite Communication Earth Station
9. Atomic Minerals Division
10. Trombay Township Project.

There are a number of institutions which are administratively attached to the Department of Atomic Energy for purpose of receiving grants-in-aid from the Central Government. The institutions falling under this category are as follows :

1. Tata Institute of Fundamental Research
2. Tata Memorial Hospital
3. Indian Cancer Research Centre
4. Physical Research Laboratory
5. Saha Institute of Nuclear Physics

The Indian Rare Earths Limited, a government company, is under the administrative control of the Department. Proposals are also afoot to have the following industrial operations converted into public sector undertakings :

1. Electronics Production Unit at Hyderabad
2. Jaduguda Uranium Mines and Mill

The Department has always been of the view that the constituent units of the Department should have wide powers for their day-to-day working. The heads of these units have, therefore, been declared as heads of departments for administrative purposes and in the case of large projects such as the Atomic Power Stations, apart from the powers delegated to project administrators as head of the department, fairly wide powers have been given to the project boards to enable them to give decisions on all administrative, financial and technical matters arising in connection with the execution of the projects. Only in a few restricted fields, the boards are required to come up to the Department of Atomic Energy for sanctions.

In order to understand the role of the Department in relation to the units, the process of decision-making, service and control functions, selection and evaluation procedures are discussed with reference to the Atomic Energy Establishment, Trombay.

ATOMIC ENERGY ESTABLISHMENT, TROMBAY*

In 1954, the Commission decided to set up a separate institution for research and development—the Atomic Energy Establishment, Trombay (AEET). To the existing groups of chemistry and metallurgy, which were operating till then under the Department, were added the scientific groups for theoretical physics, nuclear physics, and electronics, which were working on behalf of the Commission at the Tata Institute of Fundamental Research. Along with the scientists were transferred a few administrators to man the newly established Atomic Energy Establishment, Trombay. The number of officers involved in the transfer were about 54. These formed a numerically significant group in the Establishment and hence were able to carry successfully with them a culture appropriate to research and development.

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*Later named as Bhabha Atomic Research Centre.

In contrast, the established pattern of setting up new research laboratories was at that time significantly different. Although many of them were created under autonomous organizations, they were started in many cases by a planning officer seconded by government. The result was a transfer of culture, but in this case of government administrative practices of recruitment, budgetary controls, purchase of equipment, etc., that were in fact inappropriate to the functioning of a scientific institution. The autonomy that was given to these research institutes was lost to a large extent by the omnibus adoption of government rules and regulations.

By 1966, the Atomic Energy Establishment, Trombay, was the largest scientific centre in the country. It employed a total of about 8,500 persons, of whom approximately 2,000 were professional scientists and engineers, and another 3,000 were technical staff, many of whom are science graduates. The annual budget of the Establishment is about Rs. 11 crores.

For the first few years the main task at Trombay was to provide much of the scientific knowledge and understanding needed to design and construct reactors. The work soon expanded into many fields—atomic fuel, heavy water, radioisotopes, electronic instrumentation and equipment, uranium plant, agriculture, health physics, medical, etc.

(The organization structure of the Atomic Energy Establishment, Trombay, is given in Appendix II). The work is divided into five main research groups and an administration group, all reporting to the Director. The research groups and administrative functions are:

Research Groups

Physics
Metallurgy
Electronics
Engineering
Biology

Administration Group

Personnel
Accounts
Purchase and Stores
Scientific Information

Within the broad policy formulated by the Atomic Energy Commission, the Director, Atomic Energy Establishment, Trombay, is assisted in his scientific and administrative decision making by the Trombay Council and the Trombay Scientific Committee. The Trombay Scientific Committee consists of the directors of five major research groups and 25 heads of divisions. The Committee discusses proposals of research projects from each division, equipment and personnel required in relation to each project, and other related matters. The committee meets once a fortnight.

The Trombay Council consists of the five directors of research groups and the administrative controller. The Director, Atomic Energy Establishment, Trombay, is the Chairman of the Council. The Council discusses not only action to be taken arising from current problems, but also forward planning based partly on information from the Chairman and partly on information from the Trombay Scientific Committee. The Council meets once a week.

Within the approved budget and subject to specific approval of capital items in the ways outlined, Trombay has considerable autonomy to manage its own financial affairs. By agreement of the Commission, the Director delegates financial powers up to approved limits to directors of research groups and divisional heads. Within the overall budget there are divisional budgets.

The Director of the Trombay Establishment is an ex-officio member of the Atomic Energy Commission for research and development and has been delegated wide powers. Some idea of the delegated powers of the Director can be seen from the following :

* Reappropriation of funds under the revenue grant
* Creation of temporary posts up to a salary of Rs. 2,000 per month
* Sanctioning higher starting pay and grant of advance increments
* Sanction contingent expenditure after consultation with the internal finance adviser regarding availability of funds
* Write off losses up to Rs. 25,000 in respect of stores

The Director can delegate his powers to any authority subordinate to him.

The problem of consultation, communication, and control between the Atomic Energy Commission and the Atomic Energy Establishment, Trombay, was relatively simple since Bhabha was the Chairman of the Commission, Secretary of the Department, and Director of the Atomic Energy Establishment. Projects which were approved at the Trombay Scientific Committee and the Trombay Council were assured simultaneously the sanction of the Department and the Commission because of Bhabha's common role. In such a situation, the role of administration in the Secretariat became one of service rather than of control. The Department assisted in getting the necessary equipment, stores, foreign exchange, etc., for carrying out projects.

Great care was given to the selection, training, development, and appraisal of staff. In general, the policy was to recruit young science graduates, train and develop them within the Establishment. In order to meet the growing requirements for suitable scientific personnel a training institute was started in 1957. Selections are made on the basis of recommendations of duly constituted selection committees with elaborate selection procedures. Experts from universities and industry are invited to serve on these selection committees. Applications from science and engineering graduates with first and second class degrees are invited. Each selected candidate is given a stipend of Rs. 300 per month. The faculty of the training school is partly from the Atomic Energy Establishment, Trombay, and partly from the Tata Institute of Fundamental Research. In 1965 about 3,400 applications with first and second class degrees were received. Out of these 251 were selected on the basis of an interview; 130 actually joined the school, and 125 completed the course and were appointed at Atomic Energy Establishment, Trombay, and in other units of the Department. About these young trainees, Bhabha said, "at the end of two to three years they become very useful scientists. The best among them are likely to become future leaders. We have found this method of recruitment very satisfactory, and although it has placed a heavy load on our senior staff by making the spectrum of our scientific staff much heavier at the junior levels than it should be, it has provided a powerful source of able young scientists on the basis of which the programme can be expanded continuously in future."[15]

The evaluation procedures at the Atomic Energy Establishment, Trombay, are the same as those evolved by Bhabha at the Tata Institute of Fundamental Research. In evaluating a research worker's performance, the first step is for the research worker to write his own report about his past performance in relation to the tasks set, mentioning any special accomplishments or problems. This report is then processed independently by two other assessors. The total report is then forwarded to the Director with recommendations for increments or promotions. Promotions from one grade to another are made not on the basis of vacancies, but on the development and worth of the individual research worker.

Bhabha was the Director of the Atomic Energy Establishment, Trombay, as well as of the Tata Institute of Fundamental Research. Practices and procedures "innovated" at the Tata Institute of Fundamental

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[15] Ten Years of Atomic Energy Commission in India, 1954-64.

Research were used at the Atomic Energy Establishment, Trombay, so that tested administrative practices appropriate to research and developmental tasks were introduced within a government organization.

SOME IMPLICATIONS

We asked the question, "Why did it happen? Are the experiences drawn from the growth of the Commission in India translatable to other institutions and fields?" In the account we have presented, we cannot help noting a remarkable coming together of people and events: independent India led by Jawaharlal Nehru, who believed in transforming the nation through the application of science; Bhabha, a sophisticated engineer-cum-theoretical physicist, who enjoyed the confidence of Nehru and possessed a wide international reputation and contacts; the exploding of the atom bomb over Hiroshima and Nagasaki, which led to an unprecedented nuclear arms race under conditions of great secrecy; a horrified world eager to promote the peaceful uses of the atom and thereby coping with the guilt arising from ruthless military preparations; the release of scientific and technological know-how on an unprecedented scale following the first Atoms for Peace Conference in 1954, making available to countries such as India basic data which in other areas of economic significance could be purchased only at great cost. But if the economy and the factors for growth were ripe to make possible what we have described in this paper, there is nevertheless a lesson in the story, which has significance in a much wider context. We shall summarize below what we believe to be factors contributing to the success of the Commission in India and hope some useful guidelines will emerge, on the one hand, for policy makers concerned with developing institutions and organizations and, on the other hand, for organizational structures and administrative practices relevant wherever developmental tasks are to be undertaken.

1. The concern, care, and nurture of people who have knowledge and skills conveyed to them a sense of trust and the significance of their role in building society. Bhabha received all these from Mr. J. R. D. Tata and Prime Minister Nehru, and, in turn, gave it to the young scientists and engineers who came to work with him.

When Bhabha returned to India during World War II, the Dorab Tata Trust created a chair for him at the Institute of Science, Bangalore, so that he would have the freedom and facilities to do research. Later in 1944, when Bhabha wrote to Mr. J. R. D. Tata suggesting an institute for fundamental research in physics and mathematics, the Tatas accepted the proposal and the financial responsibility for such an idea. It is significant to note that the Tatas supported the idea at a time when nuclear physics had not become the "bandwagon" of science and more than a year before the explosion of the first atom bomb in Hiroshima. Also as Bhabha pointed out at, a time "before it had been made public that atomic piles had been successfully operated and long before there was any talk of atomic power stations."[16]

Bhabha also received support and understanding to an unusual degree from Prime Minister Nehru. Both men saw the essential role of science in transforming not only the economy of the country, but in transforming man. Nehru believed that if India was to be transformed from an industrially under-developed to a developed country, it was essential to establish science as a live and vital force in society. Nehru was the President of the Council for Scientific and Industrial Research, and later when the Department of Atomic Energy was established, he became the Minister in charge of the Department.

As mentioned earlier, Bhabha's approach to building institutions was to build the organization around men. No organization chart stood in the way of recognizing and rewarding talent. The Apsara reactor was built almost entirely by Indian scientists and engineers. He conveyed confidence in the ability of men, and the men usually rose to the occasion. Bhabha "protected" his scientists from bureaucratic procedures and organized administration largely as a service rather than a control function.

2. The combination of policy making, executive and scientific roles, provided the chief executive power, freedom, and authority which were important; Bhabha was the Chairman of the Atomic Energy Commission, the Secretary of the Department of Atomic Energy, the Director of Atomic Energy Establishment, Trombay, and Director of the Tata Institute of Fundamental Research. The combination of these four roles provided the chief executive with sufficient freedom and flexibility in decision making and commitment of resources. It also meant that the chief executive had powers and responsibilities which permitted full accountability.

The combination of these roles also meant that Bhabha was able to keep his "grass-roots" in scientific research. It was this facility of working as a policy maker, organizer, and administrator, on the one hand, and participating in the scientific work at the "coalface" level, on the other hand, that provided him the on-going understanding to motivate and manage his research workers. In research laboratories and in other developmental tasks, it seems important that the chief executive, besides policy-making and administration, maintain direct contact with his professional role. The creation of administrative practices appropriate to a given technology or set of tasks comes with familiarity and knowledge or acquaintance of the technology of tasks concerned.

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[16] Bhabha, *op. cit.*, p. 6.

3. The early beginnings of any institution are crucial, and the "culture" (or lack of it) brought by the first entrants play a significant role in establishing norms, procedures, and practices in the organization. The numbers should be large enough to achieve a critical size to permit positive interactions.

The establishment of research groups and the development of second generation scientists in the Tata Institute of Fundamental Research and in the chemistry and metallurgy groups of the Commission preceded the setting up of the Atomic Energy Establishment at Trombay by about ten years. This transfer of a large group rather than a few individuals was significant in terms of the "culture" and success at the Atomic Energy Establishment, Trombay. In this connection, it is often necessary to spin off new institutions from existing ones transferring not only expertise but a social culture appropriate to the task.

An inappropriate social culture can also be transferred by appointing persons from a different working "culture." In this connection, the appointment in a key position or in large numbers at lower positions of competent government officials, whose experience is primarily derived from routine administration, in research organizations or in industrial enterprises is very questionable. Even though many of these organizations are established as autonomous in the legal sense, administrative practices are introduced which negates the formal autonomy granted. The existing government procedures of selections, promotion, evaluation, budgetary controls, buying of supplies and equipment are highly inappropriate to the effective functioning of scientific laboratories and industries involving complex technologies. In other words, conditions have to be created through the selection of appropriate men and through association with a mother organization to ensure that the formal and administrative cultures support each other for the fulfilment of the task.

4. In professional groups, scientists, engineers, and others it is important to recognize that motivation and control is largely inherent and contained in professional commitments. In organizations using large professional groups, the role of administration has largely become one of service and not of control. This requires a basic change in attitudes rather than a change in procedures and practices.

In the Atomic Energy Establishment, Trombay, and other units administratively connected with the Department of Atomic Energy, the organization structure and procedures were those of decentralization. There was a minimum organization structure and formal control. Even though there was a hierarchical structure, because of the nature of work it was not used as a means of communication and decision-making.

Within the broad policy set, research groups discussed and defined their objectives and targets. When research projects were approved, associated wi h it was approval for budgets, equipment, and manpower. Budgetary and other controls were self-contained in the formulation of projects. This again re-emphasized the role of administration as facilitation of work rather than outside control The need to control is almost an inevitable psychological product of the structured field of which bureaucratic organizations are an example. With the devaluation of hierarchical authority and positional status in scientific work, mechanisms of administrative control were also devaluated. Control was exercised through discussion and judgment of peers.

5. The body to which the chief executive refers for policy and strategic decisions must be compact in size and consist of members chosen for their expertise and roles, rather than from a representational angle.

The number and membership of the Atomic Energy Commission were important factors in setting the "tone" and "quality" of meetings and the policy decisions taken there. As mentioned earlier, the members of the first Commission were Dr. Bhabha, Chairman, Dr. Shantiswarup Bhatnagar, Director General of CSIR and Dr. Krishnan, Director of the National Physical Laboratory. When the Department of Atomic Energy was established, a member for Finance and Mr. J. R. D. Tata were added as members. Subsequently, Dr. Vikram Sarabhai was invited to be a Commission member. The Commission consisted of five to six members (the Board of the CSIR at present consists of 34 members), all significantly able to contribute to policy-making regarding nuclear energy and its development in India.

6. There is a need for a constant interplay between the basic sciences, technology, and industrial practice if economic progress is to result from the activity undertaken. The wearing of several hats by the same person, as in the case of Bhabha, and the mobility of personnel from one type of activity to another have undoubtedly provided the impetus for growth in the projects of the Department of Atomic Energy. We may contrast this with the practice prevalent in higher educational institutions for basic sciences and technology and national laboratories where the work of applying the results of research to practical ends has to be done through other units, not organically related to the laboratories or the men that work in them.

7. The conditions under which scientists and professional workers are motivated are somewhat different from those who work in bureaucratic or industrial enterprises. Money, hierarchical status, and power are important needs for most, but to scientists and professional groups the need for autonomy of working conditions and self-development are also important factors.

Bhabha's philosophy was to identify the right persons, and then give them all the autonomy and support they wanted within the broad objectives. As mentioned earlier, these were also Bhabha's needs which were supported by Nehru and Tata.

There were a number of research institutions administratively connected with the Department of Atomic Energy —the Tata Institute of Fundamental Research, the Saha Institute of Nuclear Research, the Physical Research Laboratory at Ahmedabad, and other educational institutions. This loose federation of institutions provided a unique opportunity to the scientists of sharing experiences and information. Bhabha also encouraged and sponsored his scientists to attend international meetings. The opportunity of meeting scientists who came from abroad, of sharing facilities, of attending meetings and symposia provided an intellectual environment which would have been difficult to provide by any single institution. The relative autonomy, the mobility and interaction of scientists and engineers nationally and internationally were important factors in the motivation and morale of these people.

CONCLUSIONS

In this story of the phenomenal growth of Atomic Energy Commission in India, we have attempted to identify some factors which in our opinion facilitated growth. By implication it is also possible to discern factors which are unhelpful and inhibit development. The various factors indicated earlier are interrelated and mutually dependent. A change in one influences the total scheme of things, for in organizational structures and culture, the whole is more than the sum of its parts. Structures, procedures, and techniques are important but these must be sustained by a cluster of attitudes conveying care, trust, and nurture on the part of responsible persons. There is need to understand that there is a shift from simple to complex technologies, from stability to innovation, from experience based knowledge and skills to highly conceptual knowledge. The understanding of this change means the recognition of socio-technical systems rather than a mechanistic organization structure, the recognition that highly trained and professional groups have different needs and motivations, the realization that hierarchical structures and systems need to be minimized and that the concept of control is inherent and contained in professional commitments rather than exercised from outside.

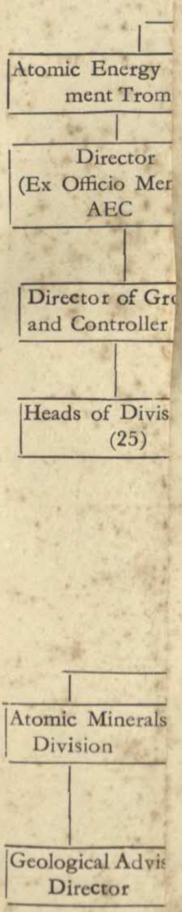
Appendix I

Some Important Landmarks in the Development of Atomic Energy Commission in India

1945	April	Tata Institute of Fundamental Research
1948	April	Atomic Energy Act of 1948 received assent of Governor General
	August	Atomic Energy Commission set up
1950	August	Indian Rare Earths registered as a limited company
1954	January	AEC decides to set up Atomic Energy Establishment, Trombay
	August	Department of Atomic Energy created
1955	March	AEC decides to build Apsara reactor
	August	First U. N. International Conference on the Peaceful Uses of Atomic Energy opens in Geneva under the presidentship of Bhabha
1956	February	Work on CIR reactor with Canadian assistance Radiochemistry Laboratory set up
	May	Decision to set up Uranium Metal Plant and Fuel Element Fabrication Facility
	October	Travancore Minerals Limited registered as a limited company
1957	August	Training School started
1958	March	Constitution of AEC revised
	June	AEC reconstituted
	July	Decision to build Plutonium Plant
	August	Planning Commission approves the building of India's first atomic power station at Tarapur
1960	February	AEC decides to build Uranium Ore Mill at Jaduguda
	May	Erection of Zerlina reactor begins
	September	Heavy Water Reconcentration Plant commissioned
1962	February	Administrative responsibility for Indian Cancer Research Centre and Tata Memorial Hospital, both at Bombay, transferred to the Department to facilitate rapid development and expansion of medical facilities and research in cancer and other diseases with the help of isotopes, etc.
		Indian National Committee for Space Research constituted.
	March	Constitution of AEC further amended
	August	Decision to build second atomic power station at Rana Pratap Sagar, Rajasthan
	September	Atomic Energy Act, 1962, comes into force
	December	Kalpakkam selected as site for third atomic power plant
1964	January	Six more rockets launched from Thumba
	July	Three meteorological rockets launched from Thumba
	November	Three Nike-Apache rockets launched from Thumba in the international synoptic launching series

APPENDIX

Atomic E



PART SIX

Understanding Organizational Structure

Superior Slate Quarry (A-D)

ECIL : An Organisation in Transition

Organisational Choice at Hindustan Lever

CASES

Superior Slate Quarry (A-D)

SUPERIOR SLATE QUARRY (A)

THE SUPERIOR Slate Quarry in the 1920's was one of the largest and oldest in the Vermont-New York slate belt. It had always enjoyed a good reputation, not only for the product it turned out, but also for the treatment of its employees. It had recently been sold to Thomas North, who had formerly owned a minor interest in it. Although North had never directly operated slate quarries, his family had for two generations owned slate properties, and he was well regarded in the town of Gorham where he lived, a community of about 2,500 persons. The population of Gorham was about one-half Yankee, one fourth Irish, and one-fourth Welsh.

Gorham's principal industry was slate quarrying and slate milling. The quarries where slate roofing was produced were located at the edges of the town. These slate quarries were open pits in which quarrymen drilled holes in the bed rock and blasted pieces of it loose. The large blocks were then hoisted on overhead cables from the quarry pit to the top and there lowered on to small cars on rails, which workers

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This case, Superior Slate Quarry A-D, HP 236 A (R)-236 D(R), was prepared by Professor George F.F. Lombard of the Harvard University Graduate School of Business Administration as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1957 by the President and Fellows of Harvard College. Used by specific permission.

known as rockmen pushed to the nearby splitting shanties. The blocks were dumped off in front of the shanties, which were cheaply constructed wooden frame buildings about ten by ten feet in size. They were placed in rows along the tract that ran from the quarry top.

Two slate splitters and one trimmer worked in each shanty, and at Superior Slate Quarry there were eight such shanties. The splitters and trimmers were paid by the hour. The splitters worked on opposite sides of the shanty door while the trimmer at his foot-pedal trimming machine stood at the back. Although they were equipped with coal stoves, the shanties were usually cold in winter and hot in summer. After a rockman had dumped his large block, which was always irregular in shape and size, the splitters marked it so as to guide them in breaking it up into sizes for the final splitting. This operation on the large block required a knowledge of the grain of the rock, for the block had to be broken along this grain. When the grain was determined, one splitter had to steady the block on its edge while the other splitter struck the block a blow with a large wooden mallet, called a "beetle." It usually required only one blow before the block fell apart along the grain line. When the block was reduced to three or four smaller blocks, the splitters carried them into the shanty.

Here each took a block, turned it on its side, and proceeded with chisel and mallet to split it along the grain into thinner and thinner pieces. When the blocks were reduced to pieces about 3/16 of an inch in thickness, the pieces were placed on a low table between the two splitters and in the back of the trimmer. The trimmer took each piece from the table, placed it along the cutting bar of the trimming machine, and proceeded to make it into as large a rectangle as he could get out of the piece. After it was trimmed, an operation which usually took only four cuts of the trimming blade, he placed it in a pile according to size. The trimmer was also expected to keep the waste chips of slate cleared away from his machine. When the day's work was done, these piles of shingles were removed from the shanties and placed outside in long rows.

The slate mills were within the town, along the river from which they derived their power. In these mills structural slate products such as flooring tiles, billiard table tops, and other articles were finished. Because of the scraping and cutting of the planers and saws, mill work was noisy and dusty. Mill work in general required less skill and experience than slate splitting. Pay for mill work was lower by about a third than for slate splitting.

Exhibit 1 provides a further description of the technology of slate splitting.

EXHIBIT I

Excerpts from *The Technology of Slate* by Oliver Bowles, Washington, Government Printing Office, 1922, pp. 64, 65-66, 66-68.

. . . An intimate knowledge of the physical properties of slate is essential in properly breaking and splitting the blocks. A skilled slate worker will drive a wedge, or plug, into a plug hole until a strain is placed on the rock, and he then procures a straight break by striking a blow at a particular point on the rock with a wooden sledge. Thus he can within certain limits force a fracture where desired. The slate is split on the grain into masses about 14 to 24 inches wide, and these masses are then broken across into the desired sizes for splitting into roofing slates. Various methods are used to subdivide the slate masses across the grain. Where they do not break readily or where the surfaces are very uneven when broken, they may be placed on a saw bed and cut across with a circular saw. If this method is used the blocks as they come from the quarry are sawed across and are later scalloped in the grain. Sawed blocks present smooth even ends that facilitate rapid splitting.

Some slates, however, break very readily and give a smooth uniform surface. Under such conditions breaking by hand is considered more economical than sawing. At one quarry observed the block is notched on two corners with a chisel and a cut made in the bottom of each notch with a smaller saw. The block is then turned and the opposite edge is cut smooth with a chisel. It is then struck one or two heavy blows with a large wooden mallet at a point exactly opposite the notches, with the result that a smooth even break is obtained. To cushion the blow and thus preserve the slate from damage, a thin flake of slate or a handful of fine slate rubbish is usually placed on the rock surface at the point where the mallet strikes. At one quarry where the rock breaks readily the corners are not notched but are cut with a small handsaw. The surface is then simply marked with a chisel which is struck repeated blows with a hand hammer. The slab is then turned over and sledged with a wooden mallet, or "beetle," on the opposite edge in the usual fashion.

The trimmer takes the slabs from the splitter and cuts them to rectangular shape. The most common trimming equipment in Pennsylvania is a straight blade about three feet in length run by a foot treadle. The outer end of the blade is attached to an overhead spring pole so that the blade strikes repeated blows when once set in motion with the treadle. The use of manpower machines undoubtedly diverts much of the energy that could be used in handling the slates, and obviously mechanical cutting blades would result in a considerably greater production of slate per man with a much smaller expenditure of human energy. The operators in the soft-vein slate belt of Pennsylvania are aware of the increased production that might result from the use of mechanical trimmers, but attempts to introduce them have been unsuccessful. This lack of success is said to be due to inability to increase or decrease the speed of the trimmer for different grades of slate. With the foot-treadle machine the trimmer runs the machine at a slower speed for the weaker slates. The mechanically driven machines, running at constant speed, so greatly increased the percentage of slate breakage that they were abandoned in favor of the foot-treadle machines.

SUPERIOR SLATE QUARRY (B)

The splitters and trimmers employed at the Superior Slate Quarry were all Welsh while the slate mill employees were primarily Irish. The Welsh were all born in Wales in contrast to the Irish who were mostly first generation born in this country. The Welsh workmen were men past middle age and few of their children were old enough to work at the quarries, and those who did were not skilled in slate splitting. Many of the Welsh became citizens and although they could speak English, they preferred to use their native tongue. They were more thrifty than the Irish and many owned their homes. The Welsh kept to themselves socially and maintained their traditional clannish customs, habits, and beliefs. They mingled little with either Irish or Yankee. It was generally recognized that the Welsh and the Irish did not get along well together.

The Welsh were without exception men who took great pride in the product of their hands; they had been accustomed for generations to working together in small groups. They looked down on work in mills as dusty, noisy, "unhealthy" places where "unskilled" Irishmen worked. They loved the rock and took great pride in working it by hand at every stage from quarry to yard. They often said, "Machines, no matter how well built, can never tell the grain. They leave marks which often mar the beauty of the finished stone."

The three men in a shanty helped each other with the work. Often when the pieces to be trimmed were piling up, one of the splitters stopped his own work to clear away the waste chips which fell from the trimming machine. Likewise, when the trimmer was ahead of the splitters, he brought them fresh water from the spring or helped them carry their blocks. When the whistle blew for lunch, they all sat down together to share their food. Each night, as the men picked up their lunch boxes to leave, they viewed with pride the work of their hands. As they passed by their neighbors' shanties they looked in at the neat piles and exclaimed at the number of squares others had finished. Then, talking in their native tongue, they moved on slowly toward their homes. The superintendent at the Superior quarry was Mr. Williams, called "Jack" by the men. He was Welsh and a leader among them in Gorham. His office was in a one-room building at a short distance from the quarry. Here he kept records on production, inventory, and hours of labor. He spent much of the day going from shanty to shanty talking in Welsh to the splitters. At other times he visited the pit and checked with the quarry foreman on the rock.

SUPERIOR SLATE QUARRY (C)

Four years after he purchased the Superior Slate Quarry, Thomas North was faced with the problem of deciding whether or not to invest a considerable amount of money to erect a large mill to house his slate splitters and trimmers. At this time the slate roofing industry was receiving stiff competition from manufacturers of composition shingles. Although its competitors were able to benefit from technological improvements, the slate industry in Vermont, because of the nature of the rock, could use few new inventions. The slate rock still had to be split by hand, and the industry as a whole remained at the handicraft level. The Federation Bureau of Mines, however, had made an intensive study of this problem, and had sent materials on its findings to all slate quarry operators.

Thomas North, after looking over the government's suggestions for improving quarry methods, decided to draw up plans for a large mill to house the slate splitters and trimmers who worked at his quarry. He postponed the decision on whether or not to erect it until he had seen final plans. He talked over the matter with Mr. Williams, and together they drew up the plans. The new mill would eliminate many operations which the splitters customarily did. The blocks as they came from the quarry were to be brought into the mill by an overhead mechanical crane and lowered by electric lifts onto two saw beds, one at each end of the mill. Here they were to be sawed up into correct sizes for splitting. This operation would not only relieve the splitters of breaking up the blocks, but would also leave the blocks with one or more squared sides and would thus help the trimmers to eliminate waste.

Blocks would then be carried from the saw bed by an unskilled low-paid worker to the splitters, whose only job would be to split the blocks. They would place the pieces which they split on a car, which was to be pushed over rails to another part of the mill where the trimmers would be lined up in a row at power-driven trimming machines. The trimmers were to be relieved of removing waste chips by another low-paid man. The finished shingles would be removed by motor trucks to the yard.

Thomas North designed the new mill to be more comfortable in winter than the shanties by installing a hot water heating system. In summer the mill would be cooler than the shanties, since the ceiling would be high and the mill well ventilated. The saws, of course, would be noisy and would raise some dust, yet it would not be harmful, nor would it compare with that in the mills in town.

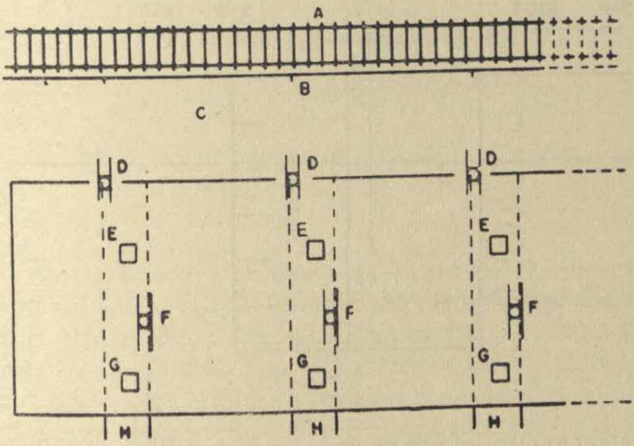
By streamlining the flow of material and by operating with the new machines and equipment, the superintendent and the owner expected production to improve substantially. The same number of splitters and trimmers were to be employed. The only new men to be hired would be the two sawyers, who were to be Welsh, and the two low-paid workers who were to be Irish.

EXHIBIT I

Excerpts from *The Technology of Slate* by Oliver Bowles, Washington, Government Printing Office, 1922.

One of the most efficiently planned slate mills observed is that of the Auld & Conger Co., between Poultney, Vt., and Granville, N. Y. The plan of the mill is shown in Figure 25, which represents but three of the 10 units of the plant. The blocks are unloaded beside the tract *a*, where they are reduced to proper size for the slate splitters. One skilled operator marks the position of drill holes on the blocks and supervises drilling and wedging, which may, therefore, be done by relatively unskilled men. The slabs when prepared for the splitters are piled on the arms of rotating racks, *d*, which occupy spaces in the wall of the closed shed. In cold weather cold-air currents through the spaces thus opened in the wall may be shut out by means of canvas flaps. The splitter working at *e* in the closed shed rotates the rack until the loaded arms are inside the shed within convenient reach. While he is occupied in splitting, a further supply of slabs is being prepared and loaded on the outer arms. The split slates are likewise placed on the arms of the rotating rack *f*, and by a half revolution they are brought within convenient reach of the trimmer at *g*. One great advantage of the rotating rack is that the trimmer is freed from the danger of accident to his fingers, a danger which is ever present where the splitter is throwing slates on the pile from which the trimmer is taking them. Belt conveyors *h* beneath the floor carry the waste from trimmers and splitters to dump carts on a depressed roadway at the side of the mill. Finished slates are piled on rack cars. In the morning the loaded cars are run out to the yards, and empty cars back to the trimmers for their day's work.

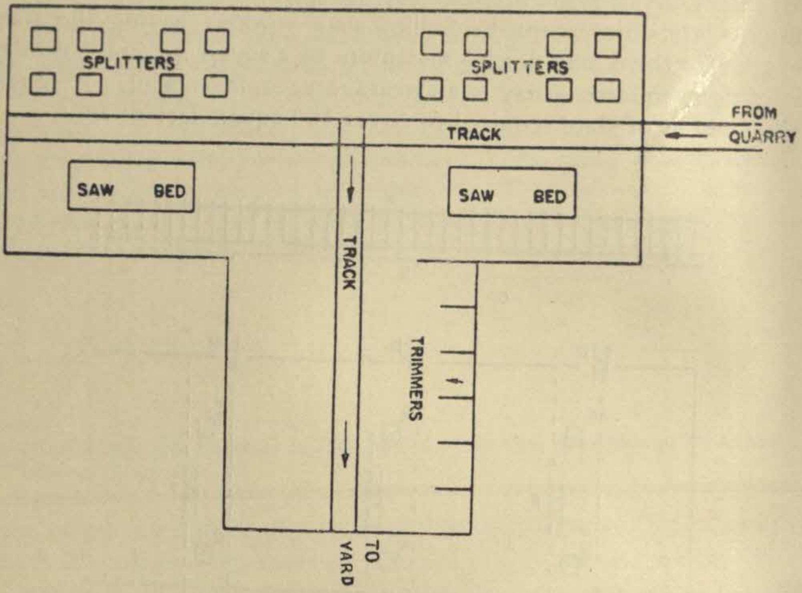
A roofing-slate unit may consist of two men, a trimmer and a splitter, who prepare their own slabs from the larger blocks. At most plants the slabs are prepared for the splitters so that splitting and trimming are uninterrupted. Skilled slate workers having the slabs prepared for them may finish a maximum of a square an hour, though six to eight squares a day is an average accomplishment. A square is the amount of slate required to cover 100 square feet of roof.



SUPERIOR SLATE QUARRY (D)

When the plans of the new mill had been completed and North had made additional estimates of costs and production, he decided to erect the mill. When it was first completed and put into use the men were enthusiastic about the change and expressed their satisfaction to Mr. Williams. After a month, however, they had less and less to say about the new set-up. Some of the splitters even suggested that it was too dusty. They were not intent on their splitting work and often looked around as if to see what their neighbors, now more numerous than before, were doing. Some complained of the noise, and when the whistle blew at night they wasted little time in leaving for home.

Fewer and fewer of the men passed "the time of day" with Mr. Williams when he came into the mill, and he too became less communicative. At first he planned and carried out many changes which he thought would improve the efficiency of the operation. Later he came less often to the mill and spent more time in his office going over figures in the production ledger. A typical series of figures for the months after the new mill opened was as follows: 1248, 1260, 1250; and later 1175, 1150.



After eight months of operation in the new mill, Mr. Williams advised Thomas North to raise pay rates five cents an hour. This increase brought the splitters' pay to 72 cents an hour and the trimmers' to 67 cents, higher rates than any paid in the slate district. Production did not increase.

ECIL : An Organisation in Transition

In 1965, the Atomic Energy Commission, Government of India, decided to set up a public sector corporation for the manufacture of electronic instruments in Hyderabad. The A.E.C. asked Shri A. S. Rao, Director of Electronics Group, Bhabha Atomic Research Centre (BARC), to prepare a project report concerning the proposed electronics corporation. The project report submitted by Shri Rao and accepted by the A.E.C. envisaged four production Divisions, and estimated that by 1970 the annual output and the staff requirements of each division would be:

Division	*Estimated Output*	*Required Scientists/ Engineers*	*Supporting Staff*
1. Nuclear and Allied Instruments	Rs. 75 to 100 lakhs	600	200
2. Components	Rs. 89 lakhs	500	50
3. Power Reactors	Rs. 75 lakhs	25	50
4. Computers	Rs. 50 lakhs	240	60

Shri Rao was appointed as Officer on Special Duty in April 1967, pending his appointment as Managing Director, Electronics Corpora-

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tion of India Limited (ECIL). Subsequently, in August 1967, he was appointed as Managing Director of ECIL. Since Shri Rao was associated from the beginning with the growth and development of the Electronics Division at BARC, and since it was considered desirable for ECIL to maintain links with the electronics research at BARC, the Chairman of the A.E.C. requested Shri Rao to also continue as a Director in the Electronics Group at BARC. The Chairman believed that it was important for the top man to be in active touch with research. He mentioned that the success of the Electronics Group at BARC was partly based on the fact that senior scientists were involved both in research and production of instruments. He said, "In my opinion R & D is the life line of such an industry and breaking away from R & D would undermine the capacity of the new corporation." He cited examples of Dr. Bhabha and other eminent scientists who, although required to do administration of research institutions, had kept alive their own research work.

The operation of setting up a new Corporation was to be a "spin-off" from the existing Electronics Group at BARC. It was hoped that the majority of the staff from Electronics Production and some from Electronics Research would agree to shift to ECIL at Hyderabad. An increase of two or three salary increments was given as an incentive to the scientific and technical staff so as to encourage them to opt for ECIL. About 300 staff were thus transferred from Electronics Group, BARC, to ECIL in Hyderabad, with new terms of appointment. The key positions in production were completely staffed by scientists from BARC. Thus, besides the Managing Director, the heads of the four electronics production units also came from the Electronics Group, BARC.

In order to understand the culture that was being transferred to ECIL through the experiences of the transferred persons, it would be worthwhile to see the organisation structure and the working culture at BARC.

BARC AND THE ELECTRONICS GROUP

In 1954 the A.E.C. decided that a separate institution, the Atomic Energy Establishment, later named the Bhabha Atomic Research Centre, be set up at Trombay for research and development of the peaceful uses of atomic energy. The objectives of BARC were stated in an important policy statement made by the Prime Minister :

> So far as peaceful purposes are concerned obviously we want atomic energy for the generation of power. . .

The control system of the first reactor built by BARC was designed and built by the Electronics Group under Dr. A. S. Rao. Thus, the Electronics Group was established in BARC in 1952 primarily to develop and build electronics instruments for reactors. The Electronics Group grew steadily in size and scope of activities. For instance, in 1964-65 the Electronics Group designed and fabricated nearly 2000 electronic instruments worth Rs. 40 lakhs. Besides providing instruments to the various establishments of Atomic Energy, they also built electronic instruments for hospitals, scientific and educational institutions, Defence, and to some extent for industry.

The Electronics Group is one of the five research groups in BARC. The four other groups are: Physics, Metallurgy, Engineering and Biology. In BARC most of the decisions concerning the broad research programme, budgets, planning, staffing, etc., are made in the Trombay Council and the Trombay Scientific Committee. The Trombay Council consists of the five Directors of Research groups, the Controller and the Director of BARC. The Trombay Scientific Committee, about 25 in number, consists of the above group plus the divisional heads, with one of the Directors of the Groups as the Chairman.

The Electronics Group, like the other research groups in BARC has a Group Board which consists of the divisional heads, plus two or three members from other divisions so as to provide interaction and information concerning other research divisions. The Board discusses research projects, budgets, personnel required, relationship with other professional institutions, problems relating to loans, payments, etc. Although the membership of the Board consists of divisional heads, sectional heads and sub-sectional heads are also invited for discussions. Each division has also its own administrative cell. The administrative cell handles leave, production schedule reports, costing, divisional stores, and house keeping. The central administration of BARC provides services to each division relating to recruitment, salary, administration, transport and security. It also helps in obtaining licences, foreign exchange, and ordering of certain components.

The organisation structure of BARC and of the Electronics Group is shown in Chart I.

In BARC, then, scientific and administrative decisions are largely made by the scientists themselves. Central administration is considered a service function.

DR. BHABHA'S PHILOSOPHY OF ORGANISATION AND ADMINISTRATION

Dr. Bhabha believed that in starting a new institution it was important to build the organisation around people rather than draw an organisation chart first and then fill in the vacancies. With such an approach, only the broadlines of work were laid down in BARC and the greatest possible freedom was given to the staff to develop new ideas and fruitful lines of work. Research divisions were allowed to grow on the ability of the various groups to expand fruitfully. This philosophy found expression in the organisation and administrative practices at BARC. For instance, in the Electronics Group, the Production and Research Divisions both did production and research work. There was no clear cut differentiation of tasks. Allocation of task depended on the way people grew up in the organisation.

Equally important was Bhabha's approach to administration of scientific research and development. He believed that the transfer of government administrative practices to industrial enterprises or to research and development organisations produced inefficiencies and lack of morale. The management and administration in BARC was largely handled by the scientists themselves. They evolved their own personnel and administrative practices.

Another important factor in Bhabha's philosophy influencing the culture of BARC was his approach to provide to scientists and technologists opportunities of building their own know-how, of minimising dependence on foreign know-how, and of gaining experience even at the risk of failures. Thus he said, "The generation of self-confidence and the ability to engineer and execute industrial projects without foreign technical assistance have been our major objective."[1] There was thus an emphasis on self-development and self-reliance which influenced the organisation and other policies at BARC.

Bhabha's philosophy was deeply embedded in BARC. It was from such an environment and culture that a "spin-off" of the new Electronics Corporation was done. A group of 300 persons transferred not only technical knowledge and skills but also a working culture. It transferred deep-rooted assumptions and values appropriate to an R & D environment.

ORGANISATIONAL PLANNING FOR ECIL

A few months before ECIL was established in Hyderabad, the Chairman of the A.E.C. approached the Indian Institute of Management, Ahmedabad and suggested that the Institute undertake a study of the beginnings of ECIL. He said this study could be of mutual benefit—"on their part it would be useful to have an interplay of practitioners with those who conceptualise, especially when they were at the stage of building the ground work of the new corporation". The members of the Institute felt that this was indeed a unique opportunity to study how an R & D set-up changes and transforms itself to a full fledged commercial venture, and to see how academic ideas and "models" are modified when faced with the realities of other people's experiences.

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[1] H. J. Bhabha, "Science and the Problems of Development", lecture delivered by invitation of the International Council of Scientific Unions, on January 7, 1966.

Several discussions were organised in Bombay to plan the organisation structure of ECIL. Present in these discussions were the Chairman, A.E.C., the Managing Director, ECIL, the proposed General Manager for ECIL, a government official from the Department of Atomic Energy, and one or two members from IIMA.

Some of the opinions and attitudes expressed in these meetings influencing the proposed organisation structure are mentioned below:

The Chairman

The Chairman said, "It is important for the top man to be in touch with research; R & D is the life line of such an industry; breaking away from R & D would udermine the capacity of your company". The Chairman had also considered that it was important that Shri Rao, who was responsible for the growth and development of the Electronics Group at BARC, should continue to provide leadership to that group. The Chairman therefore proposed two roles for Shri Rao—as the Managing Director of ECIL in Hyderabad and as the Director of Electronics Group, Trombay. He also visualised a General Manager with financial and administrative skills, a person who would be required to work closely with the Managing Director and assume overall responsibility when the Managing Director was away from Hyderabad. He said these two senior positions should be such that they complement the knowledge and skills required—"in resonance with each other".

The Managing Director

The Managing Director felt that scientific and technical staff must report only to scientific and technical persons, and not to administrators. He said that technical people should be linked with administrators whenever necessary, but generally technical people should report to technical people.

In discussing his group at Trombay, he had mentioned that there was not much distinction maintained between research and production . . . "it depends on people's interest". The idea of freedom and autonomy was important to the Managing Director as it was to other scientific and technical staff at Trombay. This was expressed in terms of freedom from administrative controls, and in terms of developing one's know-how and becoming independent of foreign collaboration. This attitude was widely shared by scientists in Trombay.

The Deputy Secretary

The Deputy Secretary in the Department of Atomic Energy who was being considered by the Chairman as the General Managaer of ECIL was a member of the Audit and Accounts Service of the Government of India. He was conscious of the fact that in Bhabha Atomic Research Centre the elite were the scientists and the engineers. His point of view was that if he had to function effectively as the General Manager, especially in the absence of the Managing Director, it was necessary that the technical staff should report to him. He had suggested that under the circumstances, the General Manager be given clear-cut written delegated powers. He was keen to have an assurance that in a situation where "technical people do not like to work under non-technical people," his delegated powers should be clear and that his decisions should receive adequate support.

The IIM Consultant

The first organisation chart that the IIM Consultant put on the blackboard for further discussion is given in Chart II.

This chart indicated that both the Managing Director and the General Manager were to perform general management functions and would be in a position to coordinate the "throughput," i.e. purchase, production, and sales, with the required service and control functions.

In order to indicate that the roles of the Managing Director and the General Manager were similar, and that the General Manager would carry on the functions of the Managing Director in his absence, a dotted line was drawn around the position of the Managing Director and the General Manager. It was mentioned that if the Managing Director was expected to be away 10-15 days a month, he and the General Manager should be in touch with each other, and that there should be a convention to consult each other on all major issues. The Chairman mentioned that in the general managerial role they were required to perform, both the Managing Director and the General Manager would have to shed their specialisations and broaden their background to handle the overall functions. He stated that at the top of the organisation, regardless of whether a person came from a scientific field or administrative service, it was important for the person concerned to understand the technology and the business aspects of the enterprise; understanding of one was not a sufficient condition for success.

However, the above chart did not take into account the special history of BARC. It was believed that such an organisation would be resisted by the scientific and technical staff. It was therefore decided to consider an organisation structure in which the roles of the Managing Director and the General Manager would be different and *not* overlapping. It was also decided that functions which required a predominantly scientific and technical background should be differentiated from those requiring a non-technical background—this was in order to keep reporting separate.

Sometime after the above discussions, the Deputy Secretary had an opportunity of a better position in the Government. The problem of the organisation structure had to be reconsidered in relation to the kind of person that would be available. In locating a new General Manager, the Chairman mentioned that they were on the lookout for a person with a technical background and commercial experience. A Mechanical-cum-Electrical Engineer with about 15 years experience in a private sector organisation was appointed.

THE CO-ORDINATION COMMITTEE AND THE ORGANIZATION STRUCTURE

The Co-ordination Committee of ECIL consisted of the Managing Director, the General Manager, the four Production Managers, the Personnel Manager, the Financial Controller and the Assistant Sales Manager (Sales Manager had not been appointed as yet). The General Manager, the Personnel Manager and the Financial Controller were new appointments. The others had worked together in BARC. About six months after ECIL started functioning in Hyderabad, the case writer visited Hyderabad to find out the operating organisation structure. It was mentioned that the Co-ordination Committee had discussed the organisation structure only last week. Chart III gives the organisation structure that was tentatively accepted after some discussion. Comments made by some members of the Co-ordination Committee are given below :

Technical Managers

They emphasised that Development should be an integral part of Production and that each technical divisions should have its own stores, workshop, production planning and scheduling, and minor administration. Almost every one emphasised the need to be independent of foreign collaboration and consequently the importance of linking Development with Production.

The Technical Managers seemed to convey that the success or failure of ECIL depended on them. It was up to them to show that industries with sophisticated technologies could be done without foreign collaboration. They were anxious to show that as a public sector organisation they could show profits in the first year or so. With this degree of commitment and responsibility, they wanted to have a say in administration, and in the reduction of administrative overheads

—"otherwise how will we show profits." They wanted no procedures that might delay or interfere with their production. As one of them said "if things don't work out we would be blamed." "We" in this case meant the production people, and not the rest of the organisation.

Managing Director

He mentioned that it was important to develop the kind of people who could do developmental work. He said that the best place to develop and get experience in D was with the production people. Also since the Production Managers were used to developmental work it would be useful to maintain a continuity with them. He also mentioned that the technical boys had worked with him for many years in Trombay and he did not want an intermediary level between them.

General Manager

In discussing some of the functions in the organisation he mentioned that the group agreed that Quality Control of the finished product should be an independent function, reporting directly to the Managing Director. About Industrial Engineering he said although it should be under the Production Manager, in this case, since there was no appropriate location and since he himself was personally interested in the function, it was agreed to locate it under the General Manager.

Regarding Sales, he said, "The Technical Managers have been used to doing their own sales. Some believe that because of the highly technical nature of the equipment, sales should be done by the technical people in the production deparment. However, after considerable discussion it was agreed that in the case of major customers, e.g. Defence, or in the case of highly expensive equipment, the Sales Manager would accompany the Technical Manager. But for the promotional visits the Sales would handle the business on their own."

Regarding Purchase, the group felt that purchase in Electronics requires technical knowledge and as such it should be located with the production people. Only common items would be handled by a central purchase under the General Manager.

In the Co-ordination Committee meeting the General Manager himself stressed the fact that Purchase, Finance, Personnel are essentially advisory functions to assist Technical Managers in their work.

In December 1968, the Chairman of A.E.C. held a two-day meeting with the Coordination Committee in Hyderabad. For this meeting the IIM Faculty had prepared notes for discussion on objectives, pricing policy and organisation structure. Regarding the organisation structure the kind of problems that were raised for discussion were:

(*i*) In what way are the objectives of ECIL and BARC different?

(*ii*) In terms of the defined and accepted objectives of ECIL, is the organisation structure now operating the "best fit" for achieving those objectives ?

(*iii*) What new forms of organisation structure can be considered to take into account the objectives of ECIL and the"spin-off" experiences of the staff ?

(*iv*) How does one change an R and D culture to a "business" culture ? And is it necessary ?

(*v*) What are the implications of retaining links between ECIL and BARC ?

Chart I

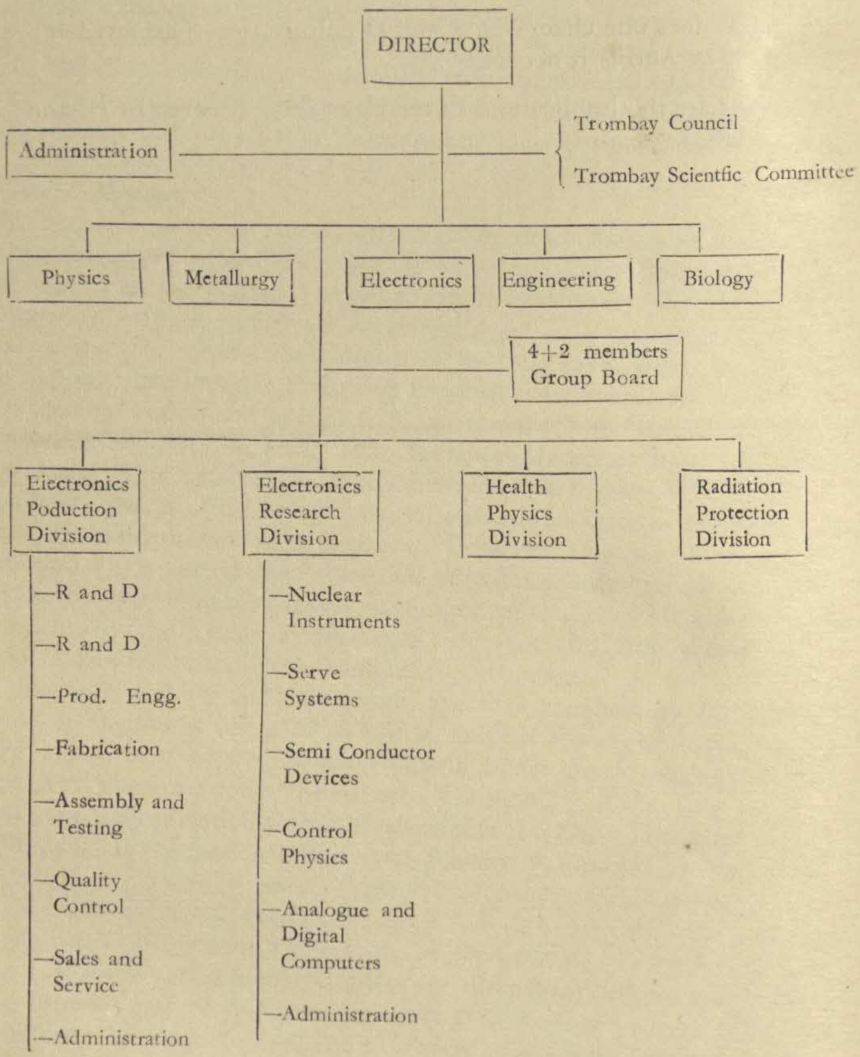
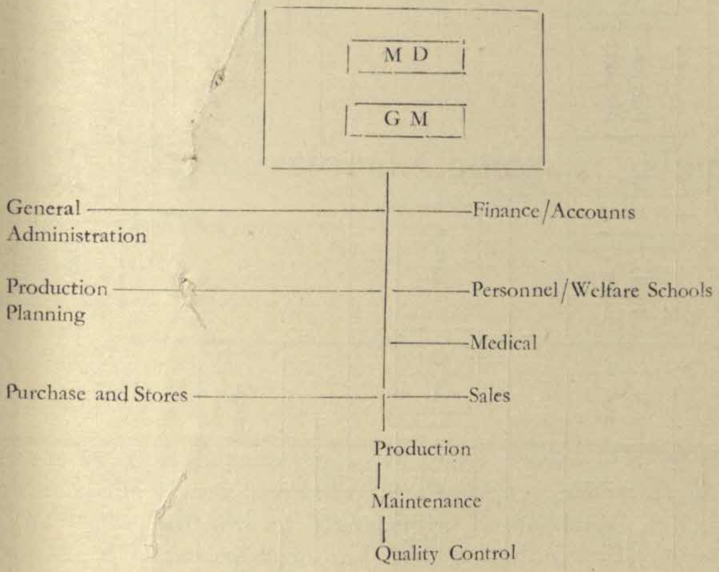

DIRECTOR
Administration
Trombay Council
Trombay Scientfic Committee
Physics
Metallurgy
Electronics
Engineering
Biology
4+2 members
Group Board
Electronics
Poduction
Division
Electronics
Research
Division
Health
Physics
Division
Radiation
Protection
Division
—R and D
—R and D
—Prod. Engg.
—Fabrication
—Assembly and Testing
—Quality Control
—Sales and Service
—Administration
—Nuclear Instruments
—Serve Systems
—Semi Conductor Devices
—Control Physics
—Analogue and Digital Computers
—Administration

Chart II


M D
G M
General Administration
Production Planning
Purchase and Stores
Finance/Accounts
Personnel/Welfare Schools
Medical
Sales
Production
Maintenance
Quality Control

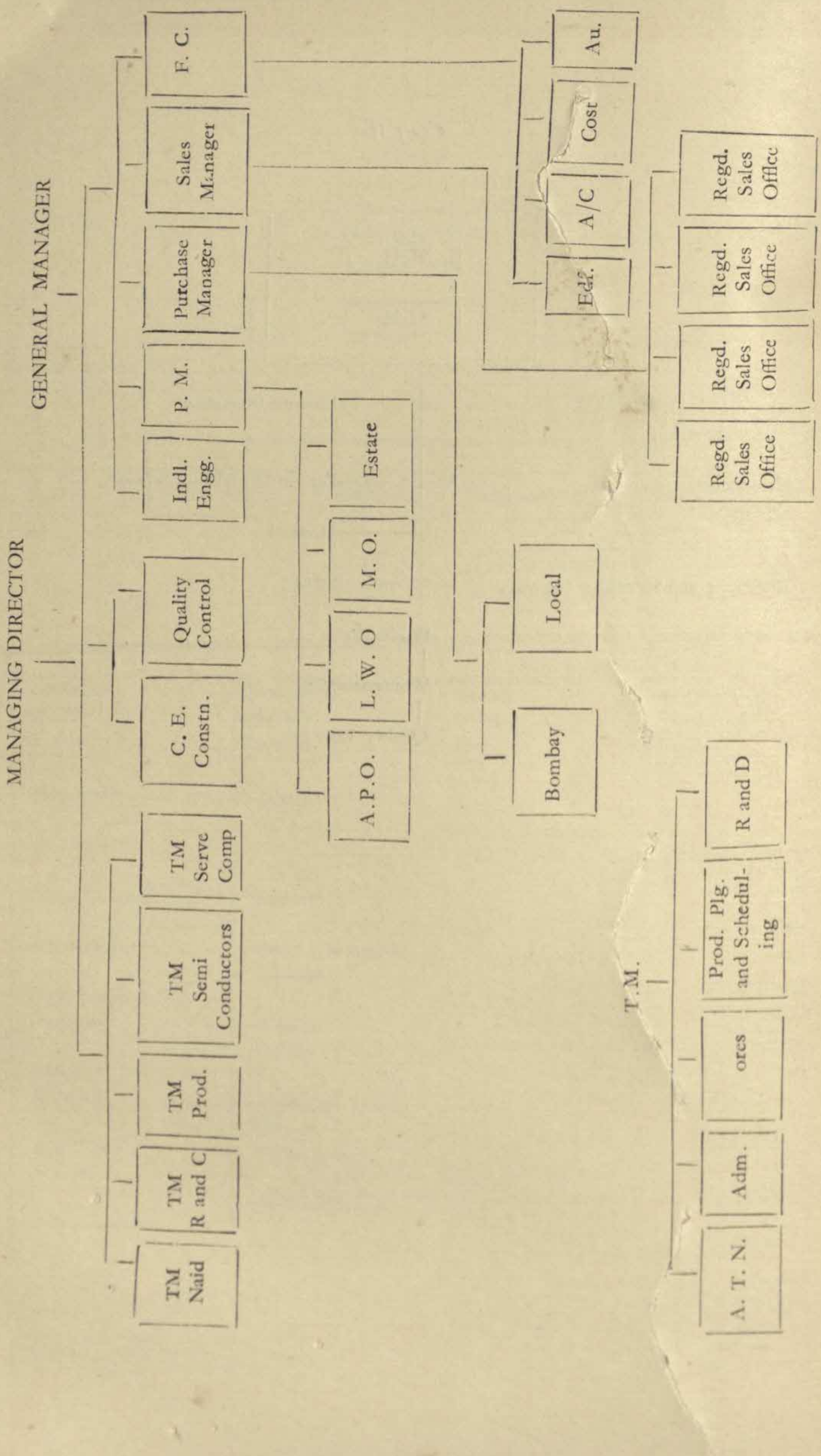


Chart III

MANAGING DIRECTOR
GENERAL MANAGER
TM Naid
TM R and C
TM Prod.
TM Semi Conductors
TM Serve Comp
C. E. Constn.
Quality Control
Indl. Engg.
P. M.
Purchase Manager
Sales Manager
F. C.
A.P.O.
L. W. O
M. O.
Estate
Bombay
Local
Edp.
A/C
Cost
Au.
Regd. Sales Office
Regd. Sales Office
Regd. Sales Office
Regd. Sales Office
T.M.
A. T. N.
Adm.
ores
Prod. Plg. and Scheduling
R and D

Organisational Choice at Hindustan Lever

This is an interview with Prakash Tandon, Chairman of the Hindustan Lever, by Dr. Kamla Chowdhry, Professor, Organisational Behaviour, of the Indian Institute of Management, Ahmedabad, concerning the problem of Decentralisaton and Reorganisation in Hindustan Lever.

Hindustan Lever is one of the largest companies in India, manufacturing and selling soaps, detergents, toilet preparations, chemicals, milk, vegetables and oil based food products, and animal feeding stuffs. The great strength of the company is considered to be in its marketing and organisational skills. The managers of the company are encouraged to take part in related extramural activities, such as public undertakings, management associations and professional bodies. The company has a reputation of "progressive" personnel practices. The culture of the company is permissive rather than directive, to use persuasion rather than give instructions.

PT : Do you remember the talk A. K. Rice gave at your ATIRA [Ahmedabad Textile Industry's Research Association] Management Conferences at Ahmedabad on "The Role of a Consultant"? He made, to me, the extraordinary statement that the calling in of a consultant always implies an admission of failure on the part of a manage-

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ment. You may recall I contested this point. One can go to a consultant, as indeed one goes to a physician for a general check-up, even when one is in the best of health. For instance, I had mentioned to the Organisation Division of Unilever, at the time I took over from my predecessor, that Hindustan Lever's organisation structure had remained essentially the same since 1944, and it was perhaps time to take a new look at it. There was no failure or crisis for which we were seeking help; in fact we were doing well.

KC : Ken had a way of making an extreme statement but perhaps there was something in what he said. Generally, organisations call in consultants when they need specialised advice, or wider experience, or a detached point of view, or support for a change that management has in mind. In all these cases, a consultant fulfils a need or a role which is not possible within an organization—I guess, to the extent that a management cannot fulfil the need with its own internal resources, there is a "failure." I do agree, however, that the word failure implies a meaning other than of its common usage. But do tell me how and why the consultant was called in; what kind of help or general check-up did you in Hindustan Lever need ?

PT : Well, in 1956, Hindustan Lever, which was a subsidiary of Unilever, was made into a public limited company with a statutory Board. Unlike the American pattern, our Board, like most British companies, was an internal Board of working Directors. By 1960-61 we began to diversify. We planned for a cotton seed milling plant; the manufacture of aromatic chemicals and nickel catalyst; and we went in for dehydrated vegetables and foods, milk products, and animal feeding stuffs: to support all this and our existing products, we decided to set up our own Research and Development. There were perhaps three reasons for diversification. First, we had accumulated considerable reserves. Second, I think there was a slack in our organisation, especially in marketing, because of the periodic controls Government introduced on vanaspati. Third, Government, which regarded Hindustan Lever as pace-setters, encouraged us to diversify to use our management skills to break new ground. After 1956, the foreign exchange position in the country had also worsened, and Hindustan Lever was, therefore, looking for products that called for little or no foreign exchange. With our perfumery and nickel catalyst alone we would help the country save substantial sums in foreign exchange. The early fifties was, therefore, a period of expansion for us—we started new factories in Calcutta, Trichy and Ghaziabad; the sixties was a period of modernization and diversification.

In 1962, after the Chinese invasion, the Indian economy took a turn for the worse; in addition to the problems of the growing population, shortage of foreign exchange, and the increasing disparity between the production and supply of agriculture, it now faced the demand for increased defence expenditure. It all led to new strains and restrictions, rising costs and higher taxation. There was a sharp decline in after-tax profit of Hindustan Lever, as the total tax rate rose from 46% to 66%. I became concerned about rationalising expenditure and the problem of communicating with sufficient speed to the organisation the decisons and implications of Government actions like price controls. I began to consider decentralisation as a way of improving the organisation's ability to quickly respond to market changes and to deal with the growing pressures from the Government.

KC : Could you recall the various steps that were taken before you went in for reorganisation?

PT : I first talked to the Vice-Chairman about the idea of reorganisation, of combining the three marketing divisions—soaps, toilet preparations and foods—into one. (The marketing organisation structure in 1962-65 is given in Exhibit 1.) You see, the Head Office was dealing with four persons at the branch level—the Commercial Manager, responsible for services and commercial activities, and the three Branch Sales Managers, one for each marketing group. With the kind of Government controls and market fluctuations, we wanted to talk to one person instead of four. Transmission of information upwards had also to become easier through an integrated system at the branch level. At our Board meetings, which are weekly and monthly, I discussed the idea with the other Directors. In general there seemed to be an agreement for the need and the direction of change. When, however, the Marketing Director discussed the idea with his three Marketing Controllers and senior managers of headquarters, he found considerable opposition from most. In December 1963, a Committee was appointed to study the problem of marketing reorganisation and to recommend whether the three marketing divisions should be integrated or not.

KC : Who were the members of the Committee and what were their terms of reference?

PT : The Committee consisted of a Marketing Controller, two General Sales Managers, and a Senior Product Manager. This Committee, chaired by the Marketing Controller, was to examine and recommend the future set-up of only the marketing operations. The Committee worked for about two months and presented their recommendations to the Marketing Director, who brought them to the Board.

KC : Why did you appoint only a Marketing Committee—the problem of reorganisation was wider, and perhaps a Committee representing other departments as well could have viewed the problem from an overall company point of view? And, secondly, it seems to me after reading the experience of Du Ponts and General Motors, that it is worthwhile to relieve the Committee of operating responsibilities while they are studying the problem—but since this was only a Marketing Committee perhaps full time attention to the organisational problem was not necessary. However, it does seem to me that the membership of the Committee and its terms of reference had a built-in opposition to integration.

PT : The problem of reorganisation concerned largely marketing and marketing personnel. It was felt important for them to study their problem, and it was important too that they be convinced of the need for reorganisation. The Committee ultimately recommended against integration. The Board members found it difficult to accept these recommendations, and after a fulldress meeting with top marketing managers, we agreed to refer the problem to the Organisation Division of Unilever. They agreed to send to India in October 1966 the Head of the Division, who for many years had worked in a consultancy firm, to visit Hindustan Lever. He was asked to look at the total organisation structure and make overall recommendations. To familiarise him with the history and organisation of Hindustan Lever, we appointed a Committee, drawn from different departments this time, to prepare a memorandum for his information. The following terms of reference of this Committee were given by the Marketing Director :

> As you know, Mr. W. G. Beaton, who is Head of Organisation Divison, Unilever, London, is coming to India to advise on the sort of technical, marketing and services organisations we should be working towards over the next few years. I would like your Committee to prepare the background information he will require. This will include a short history of the Company's organisational development since the first move towards integration in 1944. You should also prepare a chart giving the situation as it is now, with each manager's responsibilities clearly shown. Markets in which we operate should be described and the difference in outlets and techniques required to sell Soaps, Toilet Preparations, Vanaspati, New Foods and Animal Feeding Stuffs should be briefly outlined. The extent of competition and how the main competitors operate should also be described.
>
> You should explain the influence of Government and trade associations on our pricing and advertising policies, the peculiarities of operating in a controlled economy, and the problems of procurement of raw materials, both indigenous and imported.
>
> The problem of diversification, present and future, should be

indicated and consideration given to the impact these changes will have on the various sides of the business. Thus Technical, Marketing and Services functions must cover products from razor blades, through the whole range of existing detergents, toiletries and edible lines to new foods, synthetic washing products and animal feeding stuffs.

The advantages and the disadvantages of our present organisation in coping with this changing situation should be fairly stated. You should consider this in respect of policy matters, such as new products, product development, pricing, profitability and marketing strategy; and operations such as marketing, buying, distribution, transport, personnel, accounting and allied functions.

This will lead you to an assessment of our future prospects and the likely nature of the development of our business over the next 10 years. You should study our set-up at Head Office and in the branches deciding what functions should be centralized and what may be dealt with at the branches.

An assessment of the possible changes in the actual market place should be made, whether you believe that self-service is likely to make an impact on the Indian market, whether retail associations are likely to become stronger and force higher margins, whether wholesalers will tie up a proportions of the retail trade as they have in the western world, and whether chain stores, departmental stores and the like will appear. In general, try to predict the future of the retail, wholesale and cooperative trade in India, the effect of the new Income Tax rules on advertising and their impact on the likely structures required to promote the company's products. Basic cost figures should also be produced, particularly in fields where our costs are different from those applicable to a western operation, and also how they differ from our main internal competitors.

The members of this Committee were the Marketing Controller as Chairman—he was also the Chairman of the earlier Committee; another Marketing Controller; Chief Buyer, Raw Materials; Manager, Commercial Accounts Services; Head of Personnel; and Manager, Organisation and Methods.

KC : Tell me something about the consultant, and how he went about his job.

PT : Well, the Organisation Division of Unilever had done similar consultancy jobs for other companies of Unilever. They had just finished a consultancy assignment with the Australian company. In my earlier visits to London, I had talked to the Organisation Division and had mentioned that it was perhaps time for us to have another look at our organisation structure. In September 1965, I was in

London and I put Mr. Beaton in the picture regarding recent developments. Mr. Beaton, who had read the memorandum prepared for his visit, said at the time that he felt that a divisional structure was perhaps better suited than the unitary structure we had in mind; but he would keep an open mind on the subject.

When Mr. Beaton arrived In India in early October 1965, we suggested that Mr. Row, the Secretary of the Memorandum Committee (O and M Manager), might accompany him on his travel. Mr. Beaton asked Mr. Row if his presence would hamper free discussion. Mr. Row replied that he did not think so, and they could work out their relationship as they went along.

KC: How long did Mr. Beaton stay in India and what was the sequence of activities?

PT : Mr. Beaton spent about two weeks in Bombay, a week travelling to our units, and a week in Bombay at the end. After Mr. Beaton's arrival in India, he started out with a brief chat with me and the other Board members, and then met individually many members of the organisation. A Board lunch was arranged for him to meet the Board members; and at a series of lunches and dinners, he met as many other members of management as possible. He met all four levels of management. On his visit to the various branches he had detailed discussions with different managers. On his return to Bombay, he "retired" to his flat for three days to write his report.

Copies of the report were given to the Board members and there was a meeting where he personally presented his findings, which were briefly :

1. The Chairman has a great deal of work outside the organisation, and to relieve him of some of the inside burden, no functions should report to him.

2. Similarly, no functional reporting should be made to the Vice-Chairman so that he should have the time to attend to the overall problems within the company.

3. The marketing groups at headquarters and branches should be integrated; and the branches stengthened through more autonomy, with all services at a branch reporting directly to a single Branch Manager, responsible for all operations in the branch. He also recommended a Board of Management, as distinct from the Board of Directors, under the Vice-Chairman. The Board accepted the broad recommendations by Mr. Beaton, though it felt that there was no need for a formal Board of Management because in effect the Chairman had been delegating a great deal to the Vice-Chairman. It was agreed that the Marketing Director should call a meeting of the senior Marketing Managers. At this meeting Mr. Beaton outlined his ideas and recommendations. The organisa-

tion structure of the Marketing Division as recommended by Mr. Beaton is given in Exhibit 2.

KC : When did you put the new organisation structure into effect ?

PT : The consultant left in early November and the Marketing Director, who was due to retire from India, left in the middle of December 1965. We felt that we should wait for the views of the new Marketing Director before making any changes. The new Marketing Director said he had seen the report in London, but he was new to India and to Hindustan Lever, and he would, therefore, like some time to familiarise himself with the situation and the problems before he gave his opinion on the reorganisation. He travelled all over India, met many persons in the marketing set-up to understand their problems, and by the end of April, he came forward with his views and recommendations. While accepting the reorganisation, he suggested two modifications :

1. That he would like to have two Marketing controllers (Mr. Beaton had suggested one) one for Soaps, Detergents and Toilet Preparations, and the other for Foods.
2. That he would like to have the four Branch Managers (Mr. Beaton had designated them as Branch Controllers) reporting to a Sales Controller at Head Office instead of reporting directly to him (again as suggested by Mr. Beaton).

The organisation structure as proposed by the new Marketing Director is given in Exhibit 3.

We accepted these modifications. It seemed useful to have a Sales Controller who could tour the country and keep in touch with the branches, to relieve the Marketing Director of the burden of personally controlling the extensive field operations, especially as he also had to act as a member of the Board, and a separate Foods Controller, for the special skills involved.

KC : How were the changes announced ?

PT : Every Tuesday, there is an open, informal meeting where various announcements are made, and managers visiting Head Office or travelling outside report on their visits. It is an informal meeting for all kinds of communications. We sent the word around requesting managers to specially attend the following meeting. At this meeting I first announced certain additions to the Board, that of a new Director for Research and a Resident Director in Delhi. The Marketing Director announced his organisational changes and the men placed in the new set-up. Telex messages were sent to all branches informing them of the changes. The Union representing field force and clerks were invited to Bombay for a discussion about the changes.

The Marketing Director and his top men made a quick tour of the branches to discuss appointments and changes at the branch level.

KC : You must have had problems in finding men with sufficient "general" experience to take charge of the branches. Your previous Commercial Managers or Branch Sales Managers must have had experience only in their own functions or product lines.

PT : Not really; almost all our Commercial Managers had had sales experience. One Commercial Manager (also ex-sales) became the Branch Manager and the other three, who were sent from Head Office, also had had general sales experience.

KC : I guess it is too soon to evaluate your reorganisation. Perhaps, after another six months or so it would be interesting to ask the experience of some of the major actors in this change.

EXHIBIT 1

ORGANISATION STRUCTURE

1965

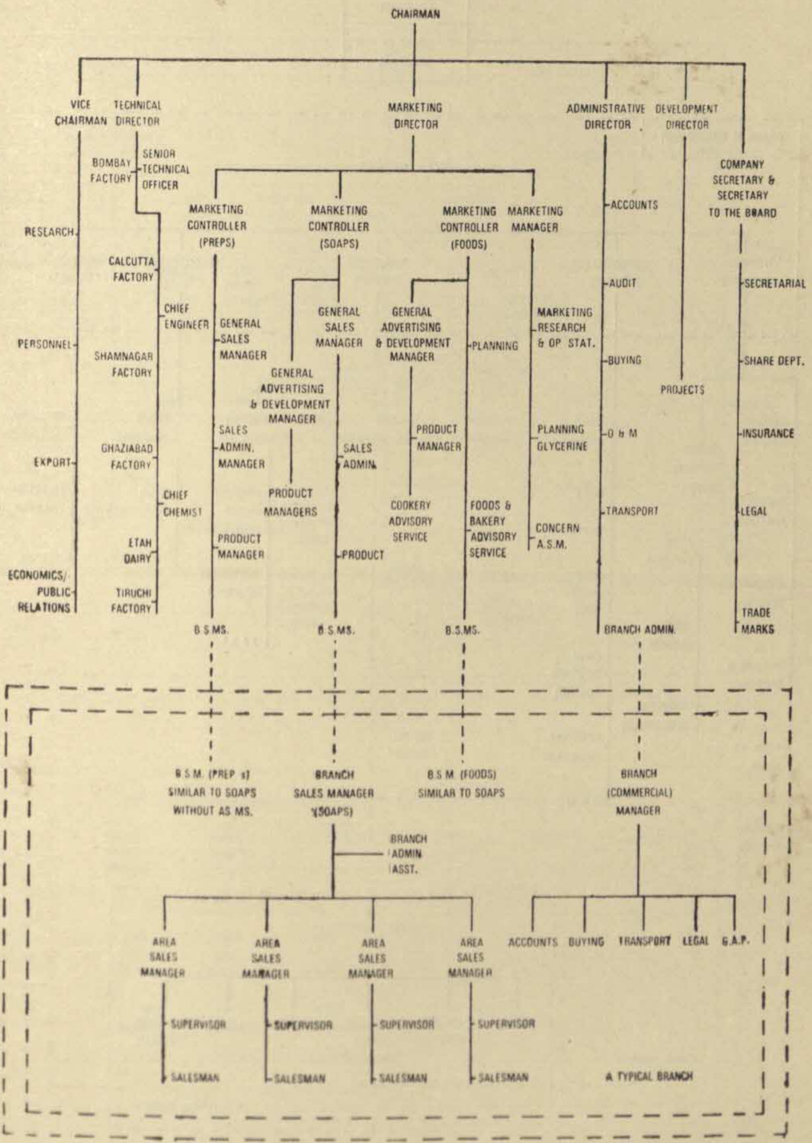
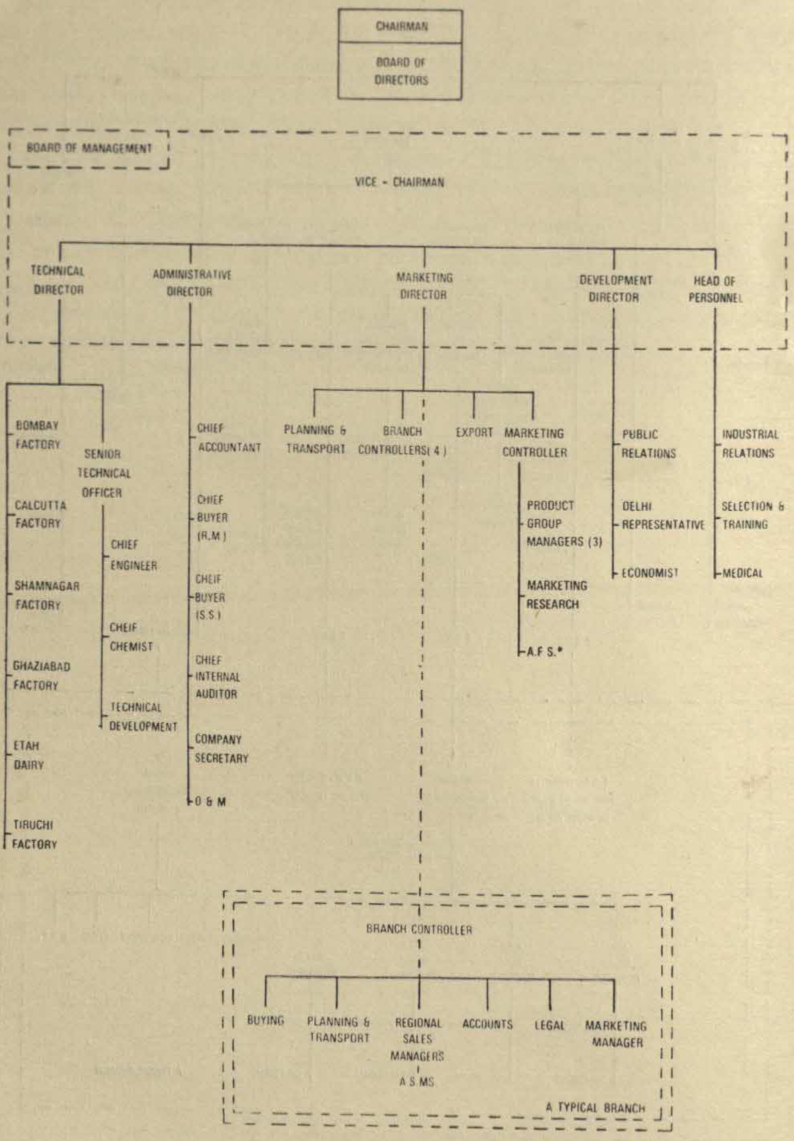


EXHIBIT 2

ORGANISATION STRUCTURE AS RECOMMENDED BY THE CONSULTANT

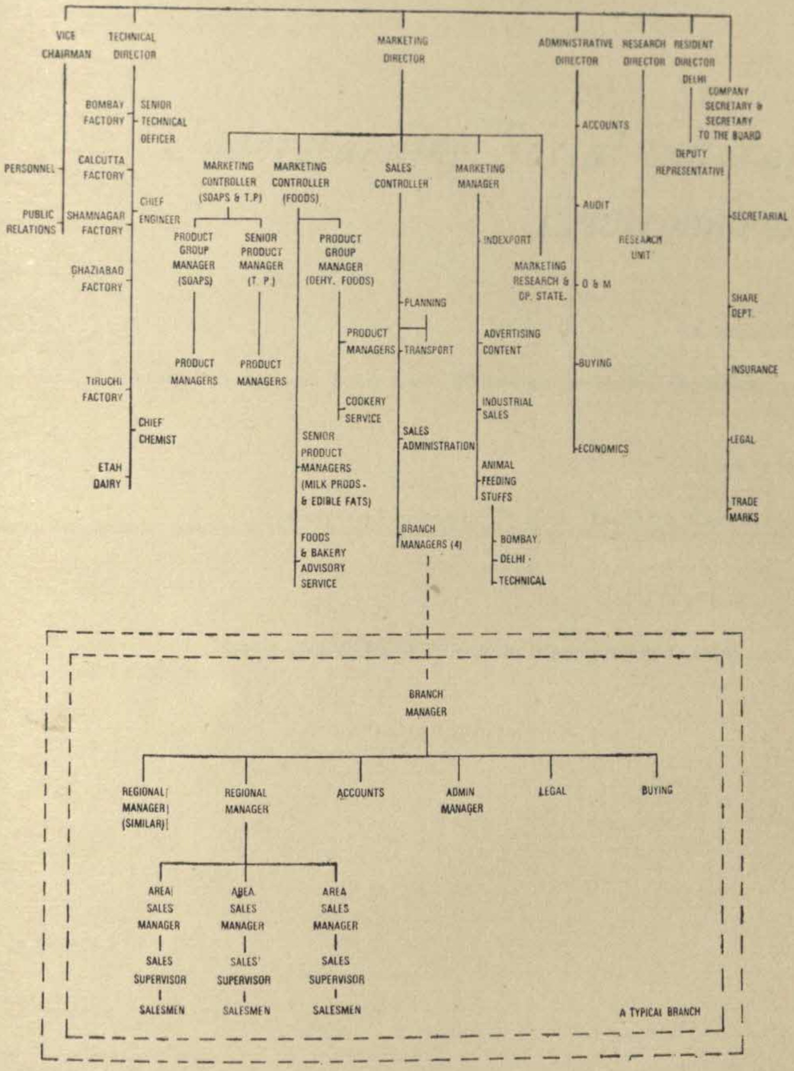


ANIMAL FEEDING STUFFS

EXHIBIT 3

REORGANISED STRUCTURE OF THE COMPANY - 1969

CHAIRMAN



PART SEVEN

Understanding Social-cultural Environment

KAKAR

Authority Patterns and Subordinate Behaviour in Indian Organisations

SHETH

Society and Industrial Work in India: A Case Study

CHOWDHRY

Social and Cultural Factors in Management Development

READINGS

SUDHIR KAKAR

Authority Patterns And Subordinate Behaviour In Indian Organizations

To BRING A SEMBLANCE of order among the many definitions of authority to be found in the existing literature, Peabody (1968) has suggested that they be classified as to whether authority is seen as (*i*) *property* of a person or office, especially the right to issue orders, (*ii*) a *relationship* between two offices, one superior and the other subordinate, such that both incumbents perceive the relationship as legititimate, or (*iii*) the *quality* of a communication by virtue of which it accepted. Following Peabody's classification, the concept of authority, as used in this paper, comes closest to the second category. We define authority as a relationship between two individuals, one "superior" and the other "subordinate", the fact of their super and subordinacy lying not in their individual characters but in the positions they occupy in the formal hierarchy of a work organisation. Inspite of some semantic clumsiness, the terms—authority and authority relations—are used interchangeably in this study.

Consistent with the above definition which emphasises the interpersonal, dyamic aspect of authority relationships, the interaction patterns of superiors and subordinates can be usefully divided into three broad categories: (a) parental, (b) impersonal and (c) fraternal.

This paper is based in part on an ongoing study of the dynamics of work and authority in Indian organisations which is being supported by a research grant from the Indian Institute of Management, Ahmedabad. The author is grateful to Mr. H. K. Shivdasani and Mr. D. Morgan for their research assistance and to Professors Dayal and Chowdhry for their comments on an earlier draft of this paper.

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The parental category can be further sub-divided according to the dominance of either the paternal *assertive* or that of the maternal *nurturant* modes in the behaviour of the superior (Hodgson, Levinson, Zaleznik, 1965).

These categories, which are ideal constructions only and rarely to be found in their "pure" stages, differ from each other along the two basic dimensions of superior behaviour—the emotional *affiliation* exhibited toward the subordinate as a person and the nature of *control* exercised over the subordinate's task performance. Whereas the term "affiliation", similar to the "consideration" dimension of Ohio Leadership Studies (Fleishman *et. al.* 1955) and "employee orientation" of the Michigan Studies (Kahn and Katz, 1961), emphasises such factors as the superior's "rapport" with his subordinates, the provision of emotional support, and a consideration of subordinate's feelings, high "control" reflects the closeness of supervision, lack of delegation and subordinate participation in planning and decision making. The basic authority patterns can be thus distinguished as follows :

FIGURE 1

AUTHORITY IDEOLOGIES AND SUPERIOR TYPES

Ideology	*Image of Superior*	*Superior behaviour toward the subordinate*	
		Emotional-Affiliation	*Task Control*
1. Parental	*a.* Nurturant	High	High
	b. Assertive	Low	High
2. Professional	Impersonal	Low	Low
3. Fraternal	Helping	High	Low

It should be noted that consistent with our definition of authority, the above classification concentrates on the effect of the superior on the subordinate rather than the influence of certain organisational imperatives on subordinate behaviour. Thus in organisations with impersonal, bureaucratic type of authority relations, though the subordinate's task performance is highly controlled, this control is not exercised by the superior as a person but is a part of the organisational planning, which has been translated into clearly-defined methods and procedures of work.

The last two authority patterns, the so-called "managerial ideologies" (Bendix, 1956) have been analysed in detail before (Bennis, 1959; Peabody, 1964) and need not be further elaborated. Of the three "pure" types, as we shall see later, it is the parental form of authority relations which is the most characteristic of Indian organisations, and thus needs to be discussed in somewhat more detail.

PARENTAL TYPES OF AUTHORITY RELATIONS

These types, which have also been termed as authoritarian or paternalistic, depending upon whether the emphasis is on the paternal assertive or the maternal nurturant modes, are roughly comparable in a number of different societies, showing a great deal of similarity across geographical and cultural boundaries. The main characteristics of organisations with parental authority relations have been summarised by Bennett and Ishino (1963 : 225) as follows :

(1) There is a degree of hierarchy which is greater than the minimal amount that any employer-employee relationship should display. That is, the status difference between employer and employee is not purely a matter of instrumental necessity but contains a cultural or ideological element which suggests that the employer is more than just an employer; he is a superior person in control because of his superiority.

(2) The concern of the employer for the aspects of lives of his employees which have nothing to do with the actual work performed. That is, he is *responsible* in some way for his workers and in most cases their families.

The main features of parental authority relations is the carry over of pre-industrial elements into modern work organisations, the transformation of a soceity's historical legacy of authority in other areas of social relations, especially the parent-child relationship, into an ideal of superior-subordinate relations in the work organisations. A good example of the persistence and pervasiveness of this ideal can be seen in the case of Japanese organisations with a management system which has come to be known as *Keiei-Kazoku-shugi* ("management-familyism") (Takezawa, 1965). In this system the relationship between the superior, who is expected to act in the role of a parent benevolently guiding the subordinate, who on the other hand is expected to reciprocate with complete obedience and absolute loyalty, has been shown by many authors to have its roots in the *ie* concept of Japanese family system and the *bushido* code of ethics which defined the master-servant relationship in traditional Japan (Yoshino, 1968). Similarly, examples of traditional authority patterns in the family or the tribe being transformed into models of superior-subordinate relationships in work organisations, have been shown to occur in the cases of Turkey, Ghana and Thailand (Bradburn, 1963; Magnus-George, 1965; Rochanapurananda, 1965).

AUTHORITY PATTERNS IN INDIAN ORGANISATIONS

The available evidence on superior-subordinate relations leads to the inescapable conclusion that the parental type in general and the assertive superior in particular, dominate authority relations in Indian organisations. Myers (1960 : 166) from his interviews with government officials, labour leaders and managers in both Indian and foreign-owned firms, reaches the same conclusion, namely, that though there are some exceptional companies, "many Indian top managements are relatively authoritarian in their relationships with lower management and with labor." Along with cases of paternalism (nurturance in our terms) this element of assertiveness in superior behaviour is not only a characteristic of top management but is a feature of authority relations at all levels in an organisation. Most empirical studies, though they have been equivocal on the affiliation aspect of superior behaviour, clearly demonstrate the existence of a high degree of task control. Thus in a study of leadership behaviour in a state-owned engineering factory (Ganguli, 1964) it was found that the prevailing pattern ranged midway between the "bureaucratic" and the "autocratic" (between the impersonal and the assertive superior in our terms).

A recent survey (Punekar and Savur, 1969) of the relations between white-collar employees and their supervisors in eleven different organisations such as banks, insurance companies, manufacturing firms, government offices, a state-owned public utility company and an educational institution, has yielded further interesting data on authority relationships in Indian organisations.

In the above study, a large majority of the superiors was convinced that subordinates cannot participate in any policy making matters as they have no acquaintance with management problems. Only three superiors, out of a sample of seventy-five, believed that subordinates can work without supervision and only six thought that giving responsibility to the white-collar employees is the best way to get the work done. Most superiors (70%) expressed the belief that subordinates can only work with supervision and have no sense of responsibility.

We have earlier mentioned the fact that organisational authority in Japan, as also in many other countries, is closely linked with the traditional beliefs and values relating to authority in other areas of social relations, such as the parent-child, teacher-student, master-servant and ruler-subject relationships. Let us briefly explore the authority components of such relationships in India to see whether they correspond to the dominant pattern prevailing in the Indian work organisations.

In a recent study of authority in social relations in India, story readers, used as textbooks for the teaching of Hindi and English in Indian schools, were collected from the states of Uttar Pradesh, Maharashtra and Rajasthan and their contents analysed (Kakar, 1970). The use of story readers for the study of social values has its precedent in the work of McClleland who has used such readers in an analysis of value-attitudes relating to economic development. In the above mentioned study, whose findings have been reported in detail elsewhere, a total of 31 stories depicting authority situations were analysed according to the following scheme: type of authority relationship depicted, main source of superior's authority, supporting source, image of superior, the means used to enforce the superior's wishes, the subordinate's conflicts in obedience, the degree of this conflict, and subordinate behaviour.

It was found that in an overwhelming number of cases (64%) the superior right to command derived from the traditional-moral factors, though strongly supported by his personality. In all cases the image of the superior was either that of a nurturant or an assertive, never impersonal or fraternal. The ideal superior behaviour which made the subordinate anticipate the superior's wishes or accept them without conscious questioning was a nurturant one. This kind of superior enforced compliance to his wishes by the provision of emotional rewards or by the arousal of guilt. On the other hand, the regulation of subordinate's behaviour by physical or emotional punishment, such as rejection and shaming, associated with the behaviour of the assertive superior, were more likely to lead to open defiance or the evasion of the superior's orders.

We have seen that though both the assertive and the nurturant superior models exist in other areas of social relations in India, it is the *nurturant* superior who is held to be the most effective one. Similarly, though both the joint family and the *yajmami* system of the caste organisation contain authoritarian elements, the nurturance associated with them is of equal import. What, then, accounts for the dominance of the assertive superior model in Indian organisations ? A part of the answer, it is being suggested here, may lie in the specific historical development of modern work organisations in India.

Though corporate organisations of the guild type were known in ancient India and persisted well into the Mughal period, there is no direct link or influence of these institutions on modern work organisations which owe their origin, form, and inspiration wholly to the period of the British rule in India. The growth of modern organisations was well under way around the end of the first quarter of the nineteenth century and owed its momentum mainly to European initiative and especially the pioneering role played by the military and civil servants of the East India Company (Rungta, 1970). The organisation structures, administrative procedures and the work methods in these companies were faithful copies of the original British models. Though in latter half of the 19th century, the number of Indian-owned companies increased rapidly, especially in certain sectors such as cotton textiles, the character of all such organisations was firmly determined by the British models, not in the least due to the fact that for a long time the managerial and policy-making levels remained the preserve of the Britishers. As late as in 1895, 42.4% of the managers and mechanical engineers in the Bombay cotton mills were European though only six out of the seventy mills were under European managing agencies (Rungta, 1970 : 50).

However, though the administrative practices and methods of Indian organisations were in general modelled after the British pattern, the practices relating to authority relationships exhibited a special twist. The authority equation was not only one of superiors and subordinates, but of *British* superiors and *Indian* subordinates. Whether or not the autocratic firmness of the British managers and civil servants was due to the prevalence and widespread acceptance of the ethic of social Darwinism in the West, the fact remains that the authoritarian elements in their relations with their Indian subordinates were greatly exaggerated by the social-psychological exigencies of the colonial situation. Whateever be their "back home" convictions about authority relations, most Britishers, once this side of Suez, exhibited a high degree of autocratic firmness in their behaviour toward the Indian subordinates, whether it be the despised clerk, the *babu* or the illiterate worker, since the "humam nature" generally attributed to the Indian subordinate was of a man who was "half devil, half sullen child" (Kipling). Though these attitudes toward Indian subordinates are evident in the cautiously worded policy statements and official documents of the colonial government (Misra, 1970), they are seen in their most vivid form in some of the best belles-lettres which have British India as their setting, most notably in Orwell's *Burmese Days* and Forster's *A Passage to India.*

The persistence of these beliefs till a very recent date can be seen in the following remarks of a manager in an English firm: "Ten years ago when I was first coming out to India, an old India hand got me aside and told me, 'Now just forget about these ideas of leadership you have been learning here in Britain. Out there if the workers don't follow instructions, belt them. That will bring them around.' " (Myers, 1960: 169). The hypothesis being advanced here is that this model of superior behaviour—emotional aloofness combined with high control of subordinates—has persisted in Indian work organisations. It has become the ideal of managerial behaviour in which Indians in supervisory positions, through a constant process of identification, have not only imitated the outer aspects of this model, such as the formal modes of dress and speech, but have also adopted its assertive attitudes and the do's-and-don'ts of behaviour relating to authority situations. It is being suggested that though the existence of the parental ideology of authority may be related to the indigenous social-cultural factors in the Indian tradition, the dominance of the assertive superior within this ideology can be best explained by a consideration of the historical legacy of Indian work organisations.

SUBORDINATE BEHAVIOUR IN THE PARENTAL AUTHORITY PATTERN

The dominance of parental authority patterns in Indian organisations stressing a high degree of control, does not however provide any indication of their "functionality", i.e. whether the existence of assertive and nurturant superiors is also a proof of their necesstity, in the sense of increasing subordinate performance and work satisfacton. The few empirical studies of subordinate behaviour in Indian organisations (Chowdhry, 1953; Bose, 1955) have generally followed the simplified design of the early Michigan Studies (Katz *et. al.* 1950, 1951) in which "employee-orientation" and "production-orientation" were held to be the opposing ends of a single continuum rather than being treated as independent dimensions of superior behaviour. The findings of these studies are thus limited to the affiliation aspect only and here they have supported the results of many American studies, namely the positive relationship between high affiliation on the superior's part with the subordinate group's satisfacton and productivity.

On the other hand, though the extremely limited number of studies on the effect of high degree of task-control on subordinate behaviour precludes any generalisations,there is some evidence outside the setting of an industrial organisaton, e.g. in an experimental study on productivity and satisfaction of Hindu boys (Meade, 1967) and morale of farmers in a community development organisation (van den Ban and Thorat, 1969) that contrary to the general American pattern, a highly controlling superior has a positive effect on subordinate performance and satisfaction. The objective of the study reported below was then to further test the hypothesis that the prevalence of assertive and nurturant superiors (as measured by the emotional affiliation exhibited toward the subordinates and degree of task-control exercised) in Indian organisations may be "functional", in the sense of increasing subordinate performance and satisfaction. Since the objective of the study was to serve as a preliminary enquiry into the "functionality" of authority patterns in Indian organisations (patterns which as we saw earlier follow a certain cultural and historical logic), the research design adopted was a simplified one. It omits certain methodological refinements, such as the differentiation of superior behaviour into more than the two basic dimensions of affiliation and control and makes an assumption of a functional dependency between superior style and subordinate behaviour.

RESEARCH DESIGN AND PROCEDURE

a. Setting

The study was carried out in the general workshop of a large engineering concern in Western India. This general workshop is essentially a jobbing shop which manufactures technologically sophisticated equipment to the individual customer's requirements and specifications and employs a total workforce of 1500 men. The selection of the sample of superiors and subordinate was based on the following criteria :

(*a*) minimise the influence of work role or situational variables such as nature of task, salary, promotional opportunities, etc. Furthermore, this level had to be of the kind where the subordinates did not work in work-groups and reported singly to their immediate superiors, so as to minimise the influence of group norms and relationships on work behaviour;

(*b*) minimise the influence of such structural properties as organisational levels, organisation size and shape, sub-unit size, line/staff hierarchies, etc.

In practice these criteria were on the whole met by selecting the sample of 29 subordinates from the first level supervisors, designated as assistant foremen in the organisational hierarchy and the sample of their 11 superiors from the second level supervisors, the foremen, from the general workshop of a single organisation.

(*b*) *Measurement*

The subordinate work satisfaction was measured through the individual administration of the Job Description Index whose development and standardisation have been reported elsewhere (Smith, Kendall, Hulin, 1969) while the work performance of each subordinate was rated on an eleven point scale by the Production Manager of the Workshop. The reliability of these performance ratings was checked by asking each superior to rate his own subordinates on the same scale. The Spearman rank-order correlation between the two sets of ratings of subordinate performance was found to be .738.

The emotional-affiliation of the superiors was measured by a 12-item questionnaire having such items as "I take special pains not to hurt the feelings of my subordinates" and "I usually keep myself somewhat inaccessible to my subordinates". Six categories of responses were provided for each item ranging from "strongly agree" to "strongly disagree". The split-half reliability after correction was found to be .838. An attempt, though not a very demanding one, at some degree of convergent validity was made by comparing the superiors' scores with their scores on the "Consideration" scale of the Leadership Opinion Questionnaire (Fleishman *et. al.*, 1955) where a correlation of .575 ($p < .01$) was found to exist.

The *task-control* was measured by a questionnaire consisting of 10 items, such as "I prefer to give my subordinates general guidelines rather than detailed instructions for the work I assign them" and "I think I can get the best results by supervising the work of my subordinates fairly closely". Again six categories of responses were provided. The split-half reliability of the scale was .863. Each superior was also rated independently by two psychologists on the task-control dimension in course of case discussions involving three superiors at a time. The correlation between the superiors' rankings on the *task-control* scale and their mean rankings by the raters on case discussion was found to be .900.

FINDINGS AND DISCUSSION

In view of the cultural and historical patterns of authority in India described earlier, it might be expected that high affiliation on part of the superior and, more importantly, a high degree of *control* exercised over task performance, would tend to have a positive relationship with subordinate performance and satisfaction in work. The findings of our study do not support these expectations. Though affiliation is found to be significantly related to subordinate work satisfaction (Pearson $r = .463$, $p < .01$) and performance (Spearman $r = .506$, $p < .01$), the degree of task control exercised by the superior has a significant negative relationship *both* with satisfaction (Pearson $r = -.491$, $p < .01$) and performance (Spearman $r = -.525$, $p < .01$). Moreover, among the varying combinations of affiliation and control that go into the building of a superior typology, it is neither the assertive nor the nurturant superior of the existing parental ideologies of authority in Indian organisations, but the helping superior of the fraternal ideology who is on the whole found to be most positively related to the work performance and satisfaction of the subordinates (Table 1). These findings are very similar to those reported in many American studies (Vroom,

964) and as for as this study concerned indicate that the mere "Indianness" of the superior and subordinate samples is by itself not a sufficient criterion to predict subordinate behaviour in a specific study.

The rationale for the expectation that the "Indianness" of the setting might show subordinate behaviour which is different from that found in other comparable studies in the West, lies in the cultural-anthropological approach which has as its general principle the proposition that basic values of a cultural pattern are reflected in all areas of social interaction, and that, to some extent, behaviour in work organisations is determined by the norms and values of the outside culture to which the individuals belong. In relation to organisational authority in India, we saw that these norms and values emphasised the likelihood of a highly controlling superior having a positive influence on subordinate work behaviour. Yet, as our findings show, there is a wide discrepancy between the expected and the actual, a gap, which as we shall see below, lies in the *application* of the cultural approach, in the kind of assumptions that are usually made about the link existing between social-cultural factors and behaviour in the organisational setting. The assumptions about the nature of this linkage need to be examined more closely before the usefulness and the limitations of the cultural approach in the explanation of organisational behaviour can be assessed in perspective.

The link between individual behaviour in organisations and the wider culture is generally sought to be provided through the concept of "national character" (Inkeles and Levinson, 1954; Mead, 1951). It implies that individuals in a specific culture grow to adulthood with certain common capacities and incapacities for organisational behaviour and a shared approach to social interaction which is different from that to be found in other cultures. From the personality side, the concept of "national character" anchors itself in such terms as "basic personality" or "modal personality", which adds to the essentially valid statement, "A man brings to his work attitudes and modes of behaviour which have evolved from his life experience", the clause that these attitudes and modes of behaviour have a strong common element in any given culture (Levinson, 1969: 17-19).

With reference to authority relationships, the "national character" concept would presume the existence of basic attitudes toward authority and common expectations as to what constitutes ideal superior and subordiate behaviours. These shared attitudes and expectations are conceived to be the outcome of typical early childhood experiences with authority figures in the family system which is characteristic of the culture. Thus in India, the expectation that a highly controlling superior has a positive effect on subordinate work satisfaction, is mainly based on the presumed existence of a "basic" or "modal" Hindu personality in which personal initiative is replaced by obedience and conformity. and in which security for the individual is associated with an acute dependence upon superiors (Taylor, 1948; Asthana, 1956; Carstairs 1958).

The pitfalls in the undiluted application of the "national character" and "basic personality" concepts seem to lie in the presumption of a typical childhood, not only in small primitive cultures but also in large and complex societies. It seems likely that in India, with its great variety of regional, linguistic, caste, class and religious differentiations, there is a proliferation of many "national characters" rather than the existence of a "modal personality" of the kind outlined above. Furthermore, even if we assume that in complex societies with their wide range of social differentiation, the family type and early childhood experiences with authority are relatively uniform, the concept of "national character" tends to ignore the influence of other social relatonships outside the period of early childhood which individuals enter into throughout their latency and adolescence periods and which are highly differentiated along the social class, caste and rural-urban dimensions. Social reality beyond early childhood is a factor in its own right and an attempt to interpret adult work behaviour exclusively in terms of a "national character" or a "basic personality" derived from considerations of *typical* early familial relationships (even with the questionable assumption that these relationships display an essential uniformity in a given culture) may be quite misleading.

It is being suggested here that instead of "national character", the link between the wider culture and behaviour in organisations, may be more appropriately through the concept of *psycho-social identity* (Erikson, 1968) which has its core both in the individual and his communal culture. Though the concept of identity has aspects which are developmental and historical, psychological and social, it is only its *social* aspect, the individual's sense of solidarity with a group's ideals that would be of primary interest here. Within the above meaning of the term, the proposition linking the social-cultural factors with organisational behaviour, can be then stated in the following general form: "Individual behaviour in organisaions is influenced by the ideals of those communities which are significant for the individual's sense of identity." These communities may exist both within and outside the organisation and may have norms and values which are mutually supportive or mutually conflicting. In a concerete case, one of the problems faced would lie in the identification of those communities which are salient for the individual's present reality. Thus whereas for farmers in a community development organisation in an Indian village, behaviour in authority relationships may be partly explained by reference to the ideals of such outside communities as caste and extended family, a reference to these communities may be misplaced in the case of industrial workers in an urban center. Thus in a series of studies on the industrial worker in India, Sharma has shown that in general, such elements of behaviour as satisfaction, commitment, absenteeism and union participation, are not related to caste, religion or rural-urban factors but primarily to the occupational status within the factory, namely, the differentiation and membership of the workers in the communities of machinists, assemblers or craftsmen (Sharma, 1968, 1969, 1970). Furthermore, outside the organisation, there is some relationship between work satisfaction and the extent to which a worker feels himself to be a member of the working *class*, the broader community outside the organisation. These findings seem to support Erikson's observations that "the majority of men have always consolidated their identity needs around their *technical and occupational skills*" (Erikson, 1968:127).

Thus, in attempting an explanation of organisational behaviour in social terms, the primary task becomes the identification of salient groups both within and outside the organisation, through which a majority of the individuals derive a sense of identity. We have suggested that in industrial work these groups would primarily be the communities of technical skills. In the subordinate sample of our study, it is then the community of first level supervisors and the professional community of engineers in India outside the organisation, whose ideal of authority relationships are relevant for a discussion of our findings.

Our explanatory model outlined earlier would then expect that engineers differ from non-engineers in their reactions to superior styles, which would be related to the ideals and attitudes towards authority of the engineering community in India today. Specifically, it would be expected that the satisfaction and performance of engineers would be lower than that of non-engineers under the conditions of high control. This is borne out by Table 2.

The question then arises whether there is something in the occupational values relating to authority of engineers in India which is anathemic to the exercise of a high degree of control over task performance by organisational superiors.

In Rosenberg's study of eighteen occupations in the USA (Rosenberg, 1957), engineers were found to have one of the lowest scores on 'people-oriented' values. They tended to emphasise independence in work and freedom from supervision and were not overly concerned with being liked or helpful or anxious to please, characteristics which were significantly more related to individuals in such profession as social work, medicine or teaching. The available evidence suggests that this need for autonomy is also a fundamental characteristic of engineers in India (Sinha and Misra, 1961).

This need for a relative freedom from supervision may of course be related to the personality pattern (high need for autonomy) of those individuals who choose engineering as a profession. It may, however be also related to the process of historical change which often brings profound changes in the self-images of various groups in a society and which may have brought the elements of autonomy on task and freedom from control by superiors, in the forefront of the Indian engineers' professional identity. This, of course, is conjectural since only a historical enquiry into the self-image of engineers can reveal whether such a change has in fact occurred in India. However, we do know that changes in the self-image of the engineering profession occurred in an analogous period of American history, the period of rapid industrialisation between 1865 and 1910. Thus, Horowitz (1966) has shown that in this period, American engineers became increasingly concerned with their status vis-a-vis other occupational groups. Increasingly, they began to see members of their profession as the critical actors in the process of industrialisation who had provided the underpinnings of economic growth—transportation grids and communication systems—for which the nation was indebeted to them. Their self-image was that of men who made things work, avoided the waste of time, capital and labor and were independent in thought and action. It is being suggested here that in view of the ongoing industrialisation in India, a similar process may be taking place in the professional identity of engineers, a process whose understanding is essential for an explanation of their behaviour in authority relationships. In a generalised and much more speculative form, the hypothesis can be advanced that when an occupational group (or groups) sees itself, and is seen by others, as playing the critical role in the achievement of broader societal goals, it tends to demand the kind of authority relationships in which its members have the maximum freedom from control in their task performance. Perhaps this hypothesis can also be extended to include the organisational setting where it would state that the expectations in relation to authority, of members belonging to a functional area which is seen as critical in the achievement of the organisation's objectives, are of a quite different order from those of others seen as performing "less critical" roles.

CONCLUSION

From the review of literature dealing with authority patterns and authority ideologies, it would seem that the dominance of the parental ideology in Indian organisations, especially in form of superior behaviour which can be best characterised as assertive, is related to social-cultural factors in the Indian tradition as well as to the historical development of modern work organisations in India. The mere existence of these patterns, "legitimised" by social cultural factors, is, however, neither sufficient proof of their functionality nor useful in the prediction of actual behaviour in a modern work organisation.

The findings of the empirical study suggest that in the explanation of the influence of social-cultural factors on subordinate work behaviour, the concepts of "national character" and "modal personality" (with their implication of cultural relativism) are likely to be of little value in the understanding of organisational behaviour. Such an explanation is better provided through a consideration of the ideals of the communities, essentially occupational, both inside and outside the organisation, from which a majority of the individuals concerned derive their sense of identity. Moreover, this understanding should not be limited to an investigation of the present state of these communities but needs to be further supplemented by a study of their historical development and the influence of historical change on the ideals and attitudes relating to authoriy.

TABLE 1

RELATIONSHIP BETWEEN SUPERIOR TYPE AND SUBORDINATE SATISFACTION AND PERFORMANCE

Superior Type	Subordinates		
	n	*Mean Satisfaction**	*Median Performance Rating***
1. Assertive (Low Affil.-High Control)	5	140.00	5
2. Nurturant (High Affil.-High Control)	9	148.33	5
3. Fraternal (High Affil.-Low Control)	12	159.00	7

*t values for differences in satisfaction between 1 & 3 and 2 & 3 in the predicted direction but not statistically significant at $p<.05$.

**Mann-Whitney U for difference in performance between 1 & 3 significant at $p<.01$ and between 2 & 3 significant at $p<.05$.

TABLE 2

RELATIONSHIPS BETWEEN SUPERIOR TASK-CONTROL, SATISFACTION AND PERFORMANCE OF ENGINEERS AND NON-ENGINEERS

Subordinates	*n*	*Pearson 'r' between Superior Task-Control and JDI Satisfaction*	*Spearman 'r' between Superior Task-Control and Performance Rating*
Engineers	19	—.312 ($p<{\cdot}05$)	—.550 ($p<.5$)
Non-Engineers	10	+.103	+.05

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N. R. SHETH

Society and Industrial Work in India : A Case Study

STUDENTS OF THE economic development of so-called pre-industrial societies frequently emphasize the inadequacy of suitable labor as a major factor retarding progress. The inadequacy is generally ascribed to the hold of traditional institutions and values on the society. The assumption is that an underdeveloped society has a social structure and value patterns radically different from, and largely incompatible with, those of industrial society. It follows that the process of industrialization generates a clash between the old institutional order and the demands of industrialism. To the extent that people retain their allegiance to the traditional structure and values, they fail to commit themselves to the emergent society, and growth is stunted.

Such observations have often been made with respect to industrialization in India. Reports of official investigations,[1] and studies by labor economists,[2] and social scientists,[3] have all pointed to the family-caste-religion-village-community nexus of Indian society. The transmission of occupation along family and caste lines, together with the *karma* philosophy, is viewed as restricting the mobility and achievement necessary for an industrial society. Factory laborers, seen as the lowest

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[1] Royal Commission on Labor in India, *Report*, Calcutta, 1931.

[2] G. M. Broughton, *Labor in Indian Industries*, Oxford University Press, London, 1924; Rajani Kant Das, *The Industrial Efficiency of India*, P. S. King & Son Ltd., London, 1930.

[3] Wilbert E. Moore, *Industrialization and Labor*, Cornell University Press, Ithaca, 1951.

strata of the caste hierarchy, are forced to migrate to towns to avoid starvation.[4] Migration implies a dislocation of social life. Hence, the factory worker is regarded as a fish out of water in the strange environment of the town, a person who wants to return to his village life at the first opportunity. Also, as Moore[5] has pointed out, "the traditional institutions of India have emphasized fixity rather than mobility and some of this attitude has seemingly been carried over into the industrial situation."

This view of almost complete incompatibility between industrialism and Indian society has recently been questioned by a few social scientists. Morris,[6] for example, has shown that there was a real shortage of labor in Bombay and Jamshedpur Whenever job opportunities presented themselves, people moved from near as well as distant parts of the country to take them. During most of the modern industrial period in India, the labor market has been a seller's rather than a buyer's market. In the beginning there was doubtless a high rate of absenteeism and labor turnover, but figures of absenteeism and turnover are not a reliable index of workers' willingness to work. Thorner[7] and Myers[8] have presented data to show that the sluggishness of labor suggested by statistics is largely due to the recruitment policies of employers rather than to any great reluctance of labor to settle in industrial communities. Myers, however, believes that in spite of the industrial worker's attraction to factory jobs, he does constantly feel a pull toward his village; he wants to escape from the town. He "wants to eat his cake and have it too." For this, Myers suggests the concept of partial commitment which is reflected in high rates of absenteeism but relatively moderate turnover.

This divergence of views seems to have two main causes. First, it is frequently forgotten that the concept of commitment has several facets, such as the willingness of people to go into industrial jobs, their possession of skills relevant to specific work, their adjustment to the routine and discipline of the factory as well as to the social life outside it, association with trade unionism, and the development of aspirations for higher jobs and better life for self and family. Almost all the early studies which suggested the absence of commitment were based on the ideal picture of a migrant's obligations to his family and land, his resentment of living conditions in the towns, and the rigors of factory life. There was hardly any serious attempt to examine commitment in its other aspects. Secondly, as Lambert[9] argues, different studies refer to extremely divergent situations. Practically every writer has dealt with a small sector of Indian society and then projected his observations to India as a whole. The enormous heterogeneity of Indian society is overlooked. While India has been, and still is, predominantly rural and agricultural, she has for centuries contained urban centers with social structures very different from those of the villages. This fact is of great importance in understanding the process of industrialization in India since many industrial centers of today have developed in towns of long standing. Unfortunately very little information is available on the social background of the country's industrial population. Morris[10] has complained about the lack of data on the caste structure of workers. The same complaint can be made about data on other institutional aspects as well, particularly family, land, migration, and education.

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[4] Daniel H. Buchanan, *The Development of Capitalist Enterprise in India*, Macmillian, New York, 1964, p. 294; P. N. Prabhu, "A Study of the Social Effects of Industrialization," in *The Social Implications of Industrialization and Urbanization*, UNESCO Research Centre on the Social Implications of Industrialization in Southern Asia, Calcutta, 1956, p. 66ff.

[5] W. E. Moore, *op. cit.*, p. 124.

[6] M. D. Morris, "The Labor Market in India," in W. E. Moore and A. S. Feldman (eds.). *Labor Commitment and Social Change in Developing Areas*, Social Science Research Council, New York, 1960, p. 174ff.

[7] Daniel Thorner, "Casual Employment of a Factory Labor Force: the Case of India, 1850-1939," in *The Economic Weekly Annual*, Bombay, 1957.

[8] Charles A. Myers, *Industrial Relations in India*, Asia Publishing House, Bombay, 1960.

It is within this context that I want to describe the social background of factory workers in Rajnagar (a pseudonym), a town of around 300,000 population in western India. My chief concern is with the personnel of an engineering factory, here called Oriental. Rajnagar was the capital of a native Indian state from 1734 to 1949, when it merged with the Union of India. Today it is a moderately industrialized commercial and cultural center. It is the center of ambitious plans for industrial expansion sponsored by government and private enterprise. Oriental employed nearly 900 persons in 1957, the year when most of the data presented here were collected. The factory used modern techniques of production and was generally regarded as one of the best-managed and most progressive factories in the Rajnagar area.

The analysis of data from Oriental permits the presentation of some views on labor commitment, but the information is too sketchy for detailed consideration of the problem. My main purpose is to demonstrate that factory labor in India consists of a variety of social groups, classes and categories, and to examine the relation between workers' allegiance to the factory and their social obligations outside the factory. The town and factory which are the subjects of this paper are not to be considered as representative of India as a whole.

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[9] Richard D. Lambert, *Workers, Factories and Social Change in India*, Princeton University Press, Princeton, N. J. 1963, p. 82.

[10] M. D. Morris, *op. cit.*

THE LINGUISTIC GROUPS OF RAJNAGAR

The first factories in Rajnagar were established in the last quarter of the nineteenth century. Before that period Rajnagar was an old-fashioned town with a way of life that set it apart from the surrounding country. Since it was the capital and trade center of a princely state, its population was engaged in a wide variety of non-agricultural occupations, including civil and military, teaching, medicine and law, artisanry and household services. These diverse occupations were performed by a socially heterogenous population.

In pre-industrial days there were two major linguistic groups in Rajnagar. Since it was in the heart of the linguistic region of Gujarat, the bulk of the population spoke Gujarati. But the rulers of Rajnagar came from the region of Maharashtra and spoke Marathi. They attracted many other Marathi-speaking people into military, administrative, and other positions in the town. Apart from the Gujarati and the Marathi, there were in Rajnagar people from several other regions of India, as well as a few foreigners. Numerically significant among them were people from the present Uttar Pradesh area in North India. These people spoke Hindi and were popularly called the Bhaiya since they addressed one another by the term *bhaiya*, which literally means brother. Table 1 gives a breakdown of linguistic groups in Rajnagar.

The people in each linguistic group belonged to a variety of castes and sub-castes, most of them traditionally associated with particular occupations. Among the Gujarati the sub-groups ranged from Untouchables, through the lowest laboring castes and artisans, to the highest castes such as Patidar, Bania and Brahman. Similarly, there were castes of varying status and occupation among the Marathi, Bhaiya, and other groups. The census of 1891 (which I have taken as indicative of the social situation on the eve of industrialization in the Rajnagar area) listed as many as 56 major caste groups in Rajnagar.

TABLE 1

LINGUISTIC GROUPS IN RAJNAGAR

	1891		1951	
Language	*Number*	*Percent*	*Number*	*Percent*
Gujarati	57,979	51.6	131,259	62.1
Marathi	31,227	27.8	38,573	18.2
Hindi (Bhaiya)	5,091	4.5	9,015	4.3
Others	18,174	16.2	32,560	15.4
Total	112,471	100.1	211,407	100.0

The characteristically urban activities of trade, services, and the professions brought members of different linguistic and caste groups into close contact with one another. On the other hand, the complex interdependence (ritual, economic, and political) that obtained in villages among castes within a single language group was weak in the town, where people largely interacted in terms of economic and political forces directly controlled by the state. Members of a linguistic or caste group, however, did live in their own distinctive social world, reflected in the spatial segregation of groups. There were typical Gujarati and Marathi areas in Rajnagar, though in either of them some people of other groups could, and did, settle. As far as possible families preferred to live in areas dominated by their own groups. Even today, when a man wants to buy or rent a house, he and his kin first look for one in a *latto* (locality) dominated by people of his group. And people may choose to live in otherwise unsuitable houses because they do not want to move to a locality dominated by a group other than their own.

Within a linguistic group, different castes had a tendency to segregate into particular areas. This segregation was not, however, on the basis of small endogamous caste groups, but according to a broad classificaton which, for this analysis, I conceptualize in terms of five categories: High, Middle, Artisan, Low, and Untouchable.[11] The High castes lived in the central parts of the town; Low castes and Untouchables lived on the periphery; and Middle castes and Artisans occupied the areas between. As the town expanded with the growth of business and industry, residential colonies of wealthy people, mostly from High castes, grew on the edges of the town. At the same time, working-class areas evolved where migrants to Rajnagar lived in *chawls* (large tenement houses) and other quarters irrespective of language and caste. Rajnagar also had a cantonment area on its outskirts, where members of various language and caste groups had lived together for a long time. Residents of Rajnagar often made a distinction between the "pure" and the "mixed" localities.

Several Gujarat castes could be called urban since their traditional occupations were typically urban in the sense that they were rare in rural areas. For instance, the Bania trader or banker was absent in most villages because trading and banking were unknown there. A Bania shopkeeper or moneylender might be found in a large village, but he would be a temporary resident there, maintaining his family and caste bonds in his native town. Similarly, castes such as Soni (goldsmith), Kansara (coppersmith), Bhavsar (calico printer), and Gola (grain pounder) were urban. Since Rajnagar was a very old town, it included

[11] The word 'Untouchable' has become distasteful in modern India. I share the distaste; but I have used the word here to show that employees of the scheduled castes still feel that they are 'Untouchable' and that others treat them as such.

a number of urban castes whose members had property and other interests only in Rajnagar or nearby towns; these people therefore, can be termed permanent residents of the town.

During the town's expansion as a trading and administrative center, people of different castes migrated to it from near and far. Some came individually at first and maintained economic and social connections with their families and property outside Rajnagar. But many of them eventually secured stable employment in town or were able to start their own business or industry. Their focus of activity then shifted from their native regions to Rajnagar. They brought their families and even invited other kinsmen and castefellows to join them. Their children benefited from modern education and exposure to the technical skills available in the town and thus qualified for urban occupations. These people did maintain contacts with their native villages, but the contacts were limited to special occasions such as marriage, death, and family disputes. They became progressively more attached to Rajnagar, with a proportionate decline in the association with their natal regions. A number of members of rich castes such as Suthar (carpenter), Luhar (blacksmith), Patidar (traditionally peasant) and Brahman belonged to this category; they became semi-permanent migrants.

Moreover, there were people who migrated to Rajnagar purely for the sake of earning a livelihood. Some of them left all family members, including wives and children, in the village; others brought their wives and children with them but left parents, siblings, and other members of the family behind. These migrants had house, land, or other property in the village and performed all ritual and secular ceremonies there. They had few or no intimate social connections in the town and looked forward to returning home when they retired from work, or earlier if economic prospects bettered in the village. Such individuals may be termed temporary migrants.

The Marathi population in Rajnagar could also be divided into the three categories mentioned above: permanent residents, semi-permanent migrants, and temporary migrants. As stated earlier, the rulers of Rajnagar persuaded many Marathis to immigrate to Rajnagar from Maharashtra. They did this partly to reward kinsmen or courtiers for acts of valour by granting them property in or around Rajnagar, partly to help people of their homeland suffering from poverty, and partly because suitable Gujaratis were not available for some administrative and military services. Once begun this immigration continued to grow, as more and more Marathis followed their kinsmen and friends into the expanding cadres of state services, professions, artisanry, and household work. In some cases entire kin groups or castes migrated to Rajnagar and eventually minimized, or ceased entirely to maintain, contacts with their native regions. Some Marathis even disposed of land or other property in Maharashtra and acquired property in Gujarat. In some cases the succeeding generations had hardly any contacts with Maharashtra and considered Rajnagar their native place. Other Marathis, in spite of secure jobs in town, kept contacts with Maharashtra thus falling in the semi-permanent migrant category. Still others were temporary migrants, working in Rajnagar, but keeping up most social connections with their native region.

Among language groups other than Gujarati and Marathi, few were permanent residents or semi-permanent migrants. Almost all came to Rajnagar in search of employment and lived as temporary migrants. Some of them brought their wives and children to Rajnagar, but the latter were very temporary dwellers in the town and kept moving between Rajnagar and their native villages. T. ose who had left their families behind often preferred to share accommodations with kinsmen, castemen, or neighbors working in Rajnagar. The number of migrants sharing a rented house in this way ranged from two to eight. This device served two functions: each of the co-tenants saved on house rent; and each had the advantage of being in the company of people whom he knew well and who would help him in illness or emergency.

OCCUPATION AND CASTE IN RAJNAGAR

Most occupations were traditionally associated with particular castes. It must be remembered, however, that the relation between caste and occupation has never been as exclusive as is often imagined, even in rural areas. In urban areas, where there is a wide variety of occupations, the relationship has been much weaker. In Rajnagar, trade and commerce were not the monopoly of the Bania; they were practised by various castes, such as the Brahman, Patidar and Gola as well as by the Muslims and the Parsis. Since most arts and crafts such as carpentry, black-smithing, weaving and the manufacture of artistic goods involved transmission of special skills, usually from kin to kin, they were monopolized by the appropriate Artisan castes. However, it was often uneconomic for all sons of an artisan to take up the family occupation; hence all except one or two took other jobs. Those sons of an artisan who were lucky enough to receive formal education at school or college went into government service or private work. Since administrative and professional work presupposed some formal education, such positions could not be uniformly transmitted from father to son. Consequently, in the pre-industrial days the different caste groups in Rajnagar reared up successive generations whose employment prospects depended on individual achievement as much as on caste. At the same time, the pressure of population was increasing. This led to increased unemployment in rural areas which, in turn, resulted in the movement of people to the town. The combined effect of these factors was that when new employment opportunities opened, there were people willing to accept them without necessarily being obsessed by traditional occupations. The factory population of Rajnagar must be analyzed in this context.

The first textile mills developed in Rajnagar around 1885, and were located on its eastern boundaries. Labor for the mills came from Low caste groups residing in the vicinity of the factory area. Even in 1957, the bulk of the working force of the oldest textile mill came from the low caste of Gola and the Muslims. This was partly due to the fact that unskilled work in textile mills had a low status in the traditional job hierarchy; High and Middle caste people did not want to enter these jobs if they could help it. The administrative and technical positions in the mills were, of course, held by members of higher castes who had received education and learned the requisite skills.

When Eastern, a pharmaceutical factory from which Oriental eventually emerged as an independent concern, was established in 1908, the ruler of Rajnagar decided to turn part of the northwestern sector of the town into an industrial area. He helped the chief promoter of Eastern to acquire cultivable as well as fallow land in this area for the factory. In the course of time other factories developed near Eastern and the area is now a sizeable industrial district. As factories developed, people from nearby villages who were jobless or who had lost their lands accepted factory jobs. They were attracted by the factory's proximity to their homes and the prospect of a cash income. The villagers were illiterate and unskilled; but since most of the jobs in Eastern required no special skills, they had no difficulty in learning their tasks in the factory. In 1957, as much as 70 per cent of the labor force in Eastern was drawn from the nearby villages. Considering the factory population on the basis of residence pattern, we must distinguish these village workers from the three other categories already mentioned. They can be termed village-based workers.

Eastern was nearly 3.5 miles from the center of Rajnagar. This distance, in the absence of adequate means of transport such as bicycles and buses, tended to prevent townspeople from taking up work in Eastern. However, people living in the cantonment area or on the northern and western periphery of the town tended to seek factory work. These were at first Low caste and Untouchable Gujarati, but soon the Marathi and the Bhaiya were attracted by the new employment prospects. Gradually, workers of the different language groups were followed by their kinsmen and caste-men to Rajnagar and to factory work. This resulted in a linguistically heterogeneous, though predominantly Low caste, personnel in the factory.

Eastern gradually expanded its production. The number of jobs increased, and skilled and semi-skilled jobs came into existence. These jobs required the skills and experience of craftsmen and, in some cases, even formal technical education. By this time communication between the town and the factory had improved, and the bicycle was becoming the common man's vehicle. Members of Artisan and Middle castes who were either permanent residents or semi-permanent migrants consequently began to drift into factory jobs. In addition, a technical institute started by the ruler of Rajnagar was teaching men such factory skills as turning, fitting, welding, dyeing and bleaching; its graduates became skilled workers. In the course of time, people of higher castes such as Brahman, Bania and Patidar, who lacked the necessary education for positions in administration and the professions, accepted work in the factory according to their skill and experience. The factories then ceased to be dominated by Low caste and Untouchable workers and came to include a cross-section of the caste hierarchy of the region. The engineering workshop of Eastern, which later developed into Oriental, included a much higher proportion of skilled workers than did other units.

Table 2 gives the breakdown of different job categories in Oriental according to the percentage of various castes in each category. A glance at the table indicates that with few exceptions each level of the job hierarchy had people from all caste strata. A closer look, however, suggests some significant connection between caste status and job status. Among staff members, more than 87 per cent of the jobs were filled by persons from High and Middle castes whereas the corresponding percentage among workers was 46. Within the workers' group, the semi-supervisory, highly skilled and skilled jobs were dominated by High, Middle and Artisan castes while in the semi-skilled and unskilled categories, the Low castes and Untouchables outnumbered the others. This is explained by the fact that formal education and technical training which are prerequisites for white-collar and skilled work were still a part of the distinctive tradition of higher castes. Nevertheless, it is of considerable importance that 42.8 per cent of the semi-supervisory, more than 18 per cent of the highly skilled, and more than 22 per cent of the skilled jobs could be manned by Low castes and Untouchables and, conversely, that more than 30 per cent of workers in semi-skilled and unskilled categories included people from High and Middle castes. It is compelling evidence that in taking up factory jobs, people were not especially restricted by their caste status.

Social Ties and Recruitment

I have tried to explain the linguistic and caste heterogeneity of Orien-

TABLE 2

CASTE STATUS OF JOB CATEGORIES IN ORIENTAL

Status	*Staff*		*Semi-Supervisory*		*Highly Skilled*		*Workers Skilled*		*Semi-Skilled*		*Unskilled*		*All Workers*		*Total*	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
High	59	77.6	1	14.3	5	31.2	31	31.9	2	15.4	6	20.7	45	27.8	104	43.7
Middle	8	10.5	1	14.3	3	18.8	20	20.6	2	15.4	4	13.8	30	18.5	38	16.0
Artisan	6	7.9	2	28.6	3	18.8	17	17.5	—	—	—	—	22	13.6	28	11.8
Low	1	1.3	3	42.8	2	12.5	20	20.6	8	61.6	14	48.3	47	29.0	48	20.2
Untouchable	—	—	—	—	1	6.2	2	2.1	1	7.7	4	13.8	8	4.9	8	3.4
Other	2	2.6	—	—	2	12.5	7	7.2	—	—	—	3.4	10	6.2	12	5.0
Totals	76	99.9	7	100.0	16	100.0	97	99.9	13	100.1	28	100.0	162	100.0	238	100.1

tal's personnel in relation to the social composition of the population of Rajnagar, the location of the factory and the nature and range of jobs available in it. Interviews with Oriental employees revealed an important fact, however : nearly two-thirds of the employees have kinsmen, caste-men, neighbors, fellow-villagers, friends or friends' friends working in the same factory (see Table 3). To understand this, it is necessary to know the procedure of recruitment.

Recruitment of the highest technical and administrative officers was in the hands of the Managing Director. He looked for persons with the ability and talent required for specific jobs. When he found someone who met these requirements, he offered a good salary to attract him. Half the officers in Oriental were recruited this way. Others were promoted from lower positions in the factory. The Workshop Superintendent, for instance, started as a draughtsman when Oriental was a small workshop. The Scheduling and Designs engineers had similarly risen from humbler assignments.

All other recruitment was in the hands of the Workshop Superintendent. From time to time he made decisions regarding recruitment for the various kinds of work, according to production programs and in consultation with heads of departments about their respective needs. Advertising was seldom used as a means of recruitment. The Workshop Superintendent in most cases could choose from a large number of aspirants. When a position was vacant or additional positions were created, the people already working in the factory learned about it. Each usually had relatives, caste-fellows, neighbors or friends who were either jobless or seeking work at Oriental as a better alternative. Employees then suggested the names of these relatives to the Workshop Superintendent. Of course there were not always hundreds of men competing for every vacancy. If the vacancy was for a technical position or highly skilled work, recommendations to the recruiting officer could be made only by those employees who had kin, caste or neighbors with the appropriate engineering qualification or experience. Only a matriculate job-seeking acquaintance, for example, could be recommended for clerical work; an illiterate relative could compete only for semi-skilled or unskilled work. The important fact, however, is that recruitment in Oriental was done through kinship, caste, neighborhood or friendship links of people already working in the factory.

Management was officially interested in ensuring that, as far as possible, prospective employees already had some link with the factory, or at least were known to someone known to Management. The prescribed application form which every worker filled out at the time of recruitment, included a question: "Through whom has he (the applicant) come (for the job)?" The Workshop Superintendent explained this stress on social links as follows :

If we recruit a completely unknown man, he might misbehave. Although we can turn him away in such an eventuality, the turnover involved would mean an obvious loss to the Company. On the other hand, if we take a person coming through somebody we know, we are on safer grounds. For the person acting as a link assumes a moral responsibility for the man he brings in and would restrain him from negligence of work, misbehaviour, or trade union activities. Thus, for us the stress on social links provides an insurance against any activities harmful to the production and general discipline of the factory.

TABLE 3

SOCIAL LINKS OF ORIENTAL WORKERS

	Staff		*Workers*		*Total*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Near Relatives	21	27.6	56	34.6	77	32.4
Distant Relatives	12	15.8	35	21.6	47	19.7
Castemen	16	21.1	31	19.1	48	20.2
Neighbors, Friends	18	23.7	36	22.2	54	22.8
No Link	31	40.8	51	31.5	82	34.5
Totals	76		162		238	

Note : The categories are not mutually exclusive. Hence the figures in a column do not add up to the total given at the bottom.

TABLE 4

SOCIAL LINKS USED TO GAIN EMPLOYMENT AT ORIENTAL

	Staff		*Workers*		*Total*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Near Relatives	15	19.7	47	29.0	62	26.1
Distant Relatives	10	13.2	9	5.6	19	8.0
Castemen	1	1.3	6	3.7	7	3.0
Neighbors, Friends	27	35.5	77	47.5	104	43.7
No Link	23	30.3	23	14.2	46	19.3
Totals	76	100.0	162	100.0	238	100.1

Note : Many employees used more than one social link. For instance, a machineman had asked his brother (working outside Oriental) to speak to the latter's supervisor who used his friendship with an engineer in Oriental to get a job for the machineman. In the above table, however, the reference is only to the social link of the job-seeker with the person who finally put him in contact with the recruiting officer. Every individual thus *appears* to have used a single link.

For a person recruited through a social link, there is no social vacuum; there is someone to take his side in case of a dispute with other workers or officers or with the management. As a worker said, "Since my brother is an old employee in Oriental, the management cannot turn me out though they often make it clear that they are not satisfied with my work." His supervisor endorsed his statement. There were a number of employees in the factory who were usually referred to, not by their own names, but as Officer X's brother, Clerk Y's cousin, Turner Z's neighbor, Pattern-maker N's friend, and so on.

The employees acting as links in bringing others to the factory considered this procedure a means of fulfilling their social obligations. A man who could secure jobs for his relatives, caste-men, neighbors, or friends was a "good man" and was respected. This feeling of social obligation was evident when the Workshop Superintendent mentioned his own role as a link. He said, "I have brought to Oriental nearly fifty persons who are my relatives, caste-men or neighbors. Most of them were without jobs, and I am glad they are fixed up." According to Indian tradition, it is a man's duty to do what he can for his own people in the family, caste, neighborhood and village. The person acting as a link in factory employment had the satisfaction of performing his duty in this respect.

RESEARCH FINDINGS

The foregoing description has indicated the linguistic and caste heterogeneity of Rajnagar's factory population and incidentally has touched on the process which has drawn different sections to industry. I will now deal with this process in more detail, on the basis of my own research data.

The factory started in 1935 as a part of Eastern. From then until 1945--46, the supply of labor was considerably short of demand. For unskilled labor, the management depended mainly on landless laborers from nearby villages. These villagers were largely ignorant of factory work, or afraid of the drudgery and routine involved in it. They preferred casual employment which left plenty of leisure. Some informants told how they moved about, now collecting fuel and fodder, now working on the farm of a landlord, now in the village grocer's shop, and at times retiring for several weeks. They also told of a man from Oriental who came to their village to persuade them to work at the factory. Sometimes he made *ex gratia* payments of cash to those who accepted his job offers. Even after accepting employment, people worked reluctantly and often left the job. Several informants described workers escaping from the factory by jumping the fence without informing the supervisors; they never returned.

There was also a shortage of skilled labor. A skilled worker had to be trained as an apprentice in Oriental if he had no prior experience in the work for which he was recruited. Training in the factory meant working for little or no wages for some time, and most people thought in terms of immediate gains rather than long term prospects. As for training in other factories, there were only a few such factories in the region and they also needed skilled labor. Though good skilled workers at Oriental left the factory on one or more occasions, they would return when offered more wages. This movement increased the high turnover of labor at that time, which is crudely indicated in Table 5. The reluctance and mobility of the workers, however, diminished as other categories of people began to seek factory employment.

TABLE 5

LABOR TURNOVER AT ORIENTAL

Year	*Average Daily Employment*	*New Arrivals*	*Departures*
1944	259	280	192
1947	374	467	560
1950	368	344	206
1954	465	81	47
1957	690	307	92

Of 238 employees interviewed, 34 (14.3 per cent) were permanent residents of Rajnagar (see Table 6). Most of them were from families of merchants, professionals or government employees. Others came from Low caste families engaged in skilled or unskilled labor, including

TABLE 6

MIGRATION STATUS OF ORIENTAL EMPLOYEES

	Staff		*Workers*		*Total*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Permanent Residents	13	17.1	21	13.0	34	14.3
Semi-permanent Migrants	25	32.9	36	22.2	61	25.7
Temporary Migrants	34	44.7	59	36.4	93	39.0
Village-based	4	5.3	46	28.3	50	21.0
Totals	76	100.0	162	99.9	238	100.0

household services (Table 7). All but six of these permanent residents had little knowledge or experience of their traditional occupations (see Table 8). They could not look forward to fixed occupations in the family tradition since that occupation had ceased. They were therefore not inhibited by caste restrictions in selection of employment. Those who did have contact with their traditional occupations belonged to Artisan castes. They had learned their craft from kinsmen and practised it for some time before entering the factory. However, the amount of work they could do depended on the demand for their goods among a limited clientele. Sometimes they made good earnings but often they were idle for days at a stretch. Income was uncertain and variable. For unpopular artisans there was additional insecurity. By contrast, work in the factory assured a stable income. As one employee said, "Many of us may not like the clocking in the early morning or the searching eyes of the foreman, but the pay that we receive every month is very comforting and makes us forget the hardships."

TABLE 7

FATHER'S OCCUPATION ACCORDING TO MIGRATION STATUS OF ORIENTAL EMPLOYEES

Father's Occupation	*Permanent Resident*		*Semi-permanent Resident*		*Temporary Migrant*		*Village-Based*		*Total*	
	No.	*Pc.*	*No.*	*Pc.*	*No.*	*Pc.*	*No.*	*Pc.*	*No.*	*Pc.*
Agriculture	1	2.9	8	13.1	47	50.5	18	36.0	74	31.1
Artisan	3	8.8	6	9.8	13	14.0	3	6.0	25	10.5
Village Servant	1	2.9	3	4.9	3	3.2	8	16.0	15	6.3
Business	12	35.3	11	18.0	11	11.8	3	6.0	37	15.5
Government Services	11	32.4	19	31.1	8	8.6	4	8.0	42	17.6
Private Services	5	14.8	10	16.4	4	4.3	4	8.0	23	9.7
Factory	1	2.9	4	6.6	7	7.5	10	20.0	22	9.2
Totals	34	100.0	61	99.9	93	99.9	50	100.0	238	99.9

Exposure to urban life was another incentive to factory work. The permanent residents of Rajnagar were in touch with many items of Western culture which had been introduced in Indian cities such as textiles, furniture, modern food and drinks, and cosmetics. They wanted to "modernize," and a person or family who used the new products could raise their prestige in caste and neighborhood. Such ambitions could be realized through the stable income from factory work. Finally, once inside Oriental, employees had the opportunity to rise from a lower

TABLE 8

CONNECTION OF ORIENTAL EMPLOYEES WITH TRADITIONAL OCCUPATION ACCORDING TO MIGRATION STATUS

Connection with Traditional Occupation	*Permanent Resident* *No.*	*Pc.*	*Semi-permanent Resident* *No.*	*Pc.*	*Temporary Migrant* *No.*	*Pc.*	*Village-Based* *No.*	*Pc.*	*Total* *No.*	*Pc.*
No memory	8	23.5	11	18.0	—	—	—	—	19	8.0
Broken long ago	8	23.5	11	18.0	—	—	—	—	19	8.0
Broken in Grandfather's generation	5	14.8	10	16.4	6	6.5	4	8.0	25	10.5
Broken in Father's generation	2	5.9	1	1.6	14	15.0	4	8.0	21	8.8
Broken in own generation	5	14.8	25	41.0	66	71.0	21	42.0	117	49.2
Retained	6	17.6	3	4.9	7	7.5	21	42.0	37	15.5
Totals	34	100.1	61	99.9	93	100.0	50	100.0	238	100.0

to a higher position in the job hierarchy over a period of time. Most people viewed such a rise as enhancing their prestige among kinsmen, caste-men and neighbors.

Of the 238 employees, 61 (25.7 per cent) fell into the semi-permanent migrant category. Practically all of them had severed connections with their ancestral occupations. Most of them came to Oriental already possessing the necessary education or training. Getting the education or training was itself indicative of an ambition on the part of the employees, or their parents and relatives, to raise their status in the community. Others who were uneducated joined the factory because their traditional occupations could not support all members of the family. In such cases, sons left the family occupations only to strengthen the family economically. They worked in Oriental as parts of a family to fulfill family needs and obligations. By adding to the total income, they could stabilize the family socially, enable it to maintain its status and, if their income increased, perhaps look forward to raising this status.

There were 93 (39 per cent) temporary migrants and 50 (21 per cent) village-based employees among the interviewees. Of these, the staff members came from the High and Middle castes and the workers from Low and Untouchable castes. Staff members entered Oriental employment by virtue of their superior education and experience. Most of the workers in these categories were, however, from families of agricultural laborers or petty landholders who lived from hand to mouth. They came to town in search of unskilled factory jobs because their land was too uneconomic to support growing families. For farmers, the barely sufficient yield from their land left nothing to sell to obtain money needed to pay taxes, to purchase necessities such as clothes, spices, and fuel, and to pay for weddings and funerals. They had, therefore, to look to jobs which paid cash. Work in Oriental offered a solution.

Acquiring a job in the factory also enabled some to acquire special status for themselves and their families in their caste and neighborhood. With money, they could purchase bullocks, or needed implements, for whatever land their families had, keep their houses in better condition, purchase good shoes, clothes and other household articles for their families, and pay their debts fairly regularly. Grocers and other merchants in villages favored factory workers. As one worker said, "In our villages, if you are an ordinary laborer, the grocer will hesitate to give you credit. But if you are a factory worker, anyone will give you credit, as you have a regular income and can repay your debts with much ease."

Factory workers constituted a distinct social category in the villages around Rajnagar. They had special modes of living. They took their evening meals earlier, and went to bed earlier than others. They rarely participated in religious group-prayers which took place on weekdays. Other people looked upon factory workers as "different" and the latter moved with an air of superiority in the village.

The foregoing is not intended to imply that all employees at Oriental took factory jobs to strengthen their family's economy and enhance family status. Some three per cent of the interviewees were driven to factory jobs from sheer necessity. These were high caste men with little or no education and no aptitude for skilled work. Their traditional occupations left them dependent on relatives because of loss of clientele or because they had fallen into bad habits. These employees had moved from one unskilled job to another until some relative or neighbor got them a petty job at Oriental. Three workers of this type were Low caste men with no definite source of livelihood as their parents and other kinsmen were stray laborers or vagrants. Nor did these employees have many social links. They worked solely to provide for themselves and their immediate families.

As early as 1944, the management of Oriental realized that many of their workers were being induced by other employers to leave Oriental. Oriental therefore devised a scheme whereby persons willing to learn specialized skills had to give a surety of one hundred rupees and agree to serve the Company for ten years. Further, the management initiated schemes for providing greater security and economic incentives to workers. They started a Provident Fund in 1943, an Efficiency Bonus in 1946, and an Attendance Bonus in 1948. They made loans to workers for such things as wedding and funeral expenses and even for house repairs. In 1956, a Co-operative Credit Society was started to encourage saving among workers and to facilitate the making of loans. Casual leave was granted in four instalments, although the law provided for only three instalments. In granting holidays, management took into account the workers' own inclinations. On Mondays in the Hindu month of *Sravana* (August-September), which are days of special worship and fasting, the factory was closed an hour earlier than usual. Management thus tried to adjust schedules to the social values of the employees, which enhanced the latter's regard for Management.

In summary, the flexible occupational background of employees, the fact that factory work fulfilled their aspirations and enabled them to meet their social obligations, and management's accommodative approach eventually led to a committed working force in Oriental. A measure[12] of this commitment is given in Table 5. In 1957, only 92 workers in an average daily employment of 690, left the factory, whereas in 1944 there were 192 departures at a time when the daily average employment was 259. Those who left Oriental but came back later said, "We came back because we found the situation here much more congenial to our needs and ambitions than in other factories." One of them proudly said, "I have almost melted myself along with this iron in Oriental for nearly fifteen years. I feel it is my own factory."

I did not attempt to measure the commitment of Oriental workers to their jobs in terms of productivity. Yet, important members of the management report that they do not have to worry about schedules being unfulfilled as a result of absenteeism, labor turnover or workers' indolence.

SOCIAL COMMITMENT AND EMPLOYEE ROLES

Finally, I wish to discuss some of the social commitments of employees and the effect of these commitments on their role as employees. Among the 34 permanent residents mentioned earlier, 21 had lived in Rajnagar for a very long time. They had little or no knowledge of their kinsmen outside Rajnagar. They lived in the midst of their caste-fellows and kinsfolk. Sixteen employees in this category owned houses in the town. The others did not have houses in Rajnagar, but neither did they own them anywhere else. The remaining 13 permanent residents could still trace their ancestry outside the town. However, in each case, the father, grandfather or some more distant ancestor had migrated to Rajnagar. As years passed, other members of the family also migrated to the town, slowly reducing ties with their native locale. Six persons in this group had ancestral houses, and two had some land in the native place. But they cared very little for the property, which was managed by distant kinsmen who sent a negligible portion of the income to the employee of Oriental. Seven men had already acquired houses in Rajnagar and performed all social and religious ceremonies in the town. Most of these people only rarely visited their native places. Some had not for a long time seen even such immediate relatives as uncles and first cousins who lived far away.

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[12] Of course the turnover figures in Table 5 are an extremely unsatisfactory index of employee commitment to the factory, since reasons for the departures are not known. But in the absence of more useful data, the figures do suggest a changed situation.

For these permanent residents, work in Oriental did not mean a break in social relationships. In fact, several of them stated they wanted to stay with the factory in spite of better and more remunerative jobs available elsewhere, because working in Oriental for them meant remaining among kinsfolk and friends. There was no contradiction between loyalty to family and caste and loyalty to the factory. They helped their relatives and caste-fellows outside factory hours and utilized the earned leave of absence and holidays for fulfilling social obligations.

Of the 61 employees in the semi-permanent migrant category, 39 were descendants of people who migrated to Rajnagar for business, craft or state service and settled in the town. The other 22 migrated in their own generation, either for work or for education. Twenty-six lived in Rajnagar with their wives and children, while their parents and other relatives lived in the native place or elsewhere. Eight others had their parents with them in the town, and 24 had siblings or cousins living with them (see Table 9). These people did not own property in Rajnagar. Their lands and/or houses in the native place were looked after by brothers or by more distant relatives. They continued to return to their native village for important ceremonies. However, visits to the native place depended on distance from Rajnagar. On a rough calculation, those from places in the Rajnagar District paid 42 visits to their home communities during 1956. The corresponding figure for other Gujarati employees was 29, and for non-Gujarati employees it was only 2.3. The employee's contact with his native village thus depended on the ease and expense of travel. Those who could not easily make the trip, fulfilled their social commitments by delegating their functions to other members of the family. For instance, one employee went home only when an immediate relative died or was getting married; for other deaths and marriages he was represented by a brother or his father or by a cousin living in the village. Economic commitments of these employees were maintained mainly through the postal service. Many persons in this category looked forward to settling down in Rajnagar and educating their children in the best manner possible. They expressed a desire to send their children to college to become engineers or officers.

Among the 93 temporary migrants, 38 had their wives and children with them in Rajnagar, 37 had other family members as well. The remaining 18 had no family members in the town, although many of

TABLE 9

HOUSEHOLD COMPOSITION OF ORIENTAL EMPLOYEES ACCORDING TO MIGRATION STATUS

Household Composition	*Permanent Resident* *Number*	*Permanent Resident* *Per cent*	*Semi-permanent Resident* *Number*	*Semi-permanent Resident* *Per cent*	*Temporary Migrant* *Number*	*Temporary Migrant* *Per cent*	*Village-Based* *Number*	*Village-Based* *Per cent*	*Total* *Number*	*Total* *Per cent*
Single	1	2.9	2	3.3	12	13.0	2	4.0	17	7.2
Includes wife and children	11	32.4	26	42.6	39	41.8	18	36.0	94	39.5
Includes parents	4	11.8	8	13.1	9	9.7	9	18.0	30	12.6
Includes siblings	12	35.3	14	23.0	15	16.1	7	14.0	48	20.2
Includes cousins, etc.	6	17.6	10	16.4	12	13.0	12	24.0	40	16.8
Includes non-kin	—	—	1	1.5	6	6.5	2	4.0	9	3.8
Totals	34	100.0	61	99.9	93	100.1	50	100.0	238	100.1

Note : The different types mentioned above are not all mutually exclusive. Each type excludes those which follow it, but may include those which precede it. For example, the type "including parents" excludes the three types following it but may include households of the preceding type "including wife and children." As my intention here is only to give some idea of the degrees of proximity of relationships in the households of Oriental employees near their work-place, the figures are given *as if* the types were mutually exclusive.

them had some distant kinsmen or fellow villagers. These employees had many social obligations in the native village, which divided their attention between factory and home. They were often homesick and tended to idealize village life in relation to town life. Most of them expressed a desire to return home whenever there was reasonable chance of work or on retirement. They went home on such occasions as marriages, deaths, or serious sickness in the family. Some also returned to look after their land or harvest crops. However, most of them wanted to restrict their traveling as far as possible. Here again, it was the joint family which helped the employee. So long as a man's father, brothers or uncles were in the native place, it was they who looked after his interests and represented him in the community. The employees were quite conscious of the economic implications of a visit to the far away home. This is pointedly expressed in one of my interview records.

> In going to the native place on a month's leave you have to spend half a month's wages on travelling alone. In addition, you are going to see your people, you would naturally want to buy them gifts. Besides, you would lose your wages, along with the attendance and efficiency bonuses for the period of absence. The total would reach some where around three months' wages. Why not send this amount to the family by mail so that they can use it for paying off debts or purchasing land ?

This is sound, rational arithmetic. I knew quite a few Bhaiya and Marathi employees living as temporary migrants in Rajnagar who visited their native places only on very important occasions. In some cases, people coming from a single village or a small region took turns visiting the native area and in this way kept up social relations with their homes and villages.

Nearly all of the fifty village-based workers were permanent residents of their respective villages. They maintained most of their social obligations and worked in the factory much as did permanent residents of the town. Some of the villagers had ancestral land, but they managed it either through relatives or with hired labor. When they had to attend to the land or meet other social needs, they could use the leave of absence granted by the factory management. For these workers, then, factory work did not mean a break with their earlier social world. In fact, as suggested before, the factory job served as an instrument for boosting their status in their own society.

SUMMARY

The data presented in this paper suggest that the hypothesis that India's traditional institutions are a major barrier to the development of a committed industrial force is a questionable one. The institutional pattern of the employees of Oriental obviously contains a flexibility which has been overlooked by many students of Indian society. The permanent residents and semi-permanent migrants were influenced by factors of spatial and occupational mobility before taking up factory jobs. Factory jobs for them were another step forward rather than a serious break with their social past. Permanent residents have their social world around them in Rajnagar and can be good members of their society as well as good employees. Semi-permanent migrants have connections with distant places, but they are slowly shedding these connections and are well on their way to bringing their institutional horizon nearer to town. Temporary migrants are separated from their institutional world in a spatial sense, but keep up regular links with it. In fact, the joint family helps them maintain their social obligations while working in the factory. Village-based employees obviously have little difficulty in meeting the twin demands of traditional society and the factory.

On the other hand, work in the factory provides economic stability and security which enables the employees to meet their institutional obligations more fully than ever. New ideas of status and ambition which the employees imbibe as a result of contact with Western culture can now be realized through the income and status associated with factory work. Moreover, the considerate attitude of Management towards the employees' social needs has made possible the meeting of such needs without conflict. Moreover, the factory employees work in a world of kinsmen, caste-men, neighbors and friends so that, for the Oriental man, the social life outside the factory and the work within the factory are integral parts of the same world rather than incongruent entities. To be sure, many Oriental workers hate "the drudgery and slavery involved in working like machines, according to somebody else's wishes," but there are vital compensations!

KAMLA CHOWDHRY

Social and Cultural Factors in Management Development*

IN AN INTRODUCTORY NOTE to a publication on cultural patterns and technical change[1] the Director of the World Federation for Mental Health pointed out that—

> Rapid changes in the industrial or social structure in any country are apt to lead to unforeseen disturbances even when such changes are initiated or supervised by nationals of that country. When men and women with technical skills set out to help in shaping new developments in a country or a culture other than their own, there are clearly many more possibilities of producing unfortunate consequences. Sometimes great harm can be done to the people of that country, especially through the creation of social psychological stresses and the disorganisation of family and community life.

This statement is particularly relevant to the management development programmes introduced by the more privileged to some of the less privileged countries of the world. To understand the social and cultural factors involved we need to consider three things—relevant aspects of the traditional structure in developing countries; the objectives and methods of management development programmes suitable to those countries; and the role of the instructor and the foreign expert, especially in terms of his perceptions, values and sensitivities in dealing with his assignment. These aspects will be discussed here with reference to experience in India.

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* Reprinted by permission from *International Labour Review*, XCIV, 2, August 1966.

[1] U. N. E. S. C. O. : Cultural patterns and technical change, edited by Margaret Mead (Paris, 1953), p. 6

HISTORICAL, SOCIAL AND CULTURAL FACTORS

I would like to discuss first the management practices that emerged from the historical background of industrialisation in India, and second the Indian family system and its influences on management practices. I will then attempt to identify some social and cultural factors, such as the role of ritualism, that need to be taken into account in relation to management development.

MANAGING AGENCY SYSTEM

Industrialisation in India was pioneered largely by the managing agency system. This came into being in the early stages of the development of modern factories and plantation industries as a result of the division between the financing sources, which were in England, and those managerial functions which necessarily had to be carried out in India. It was the custom in those days to raise money in London for enterprises to be started in India, and to appoint some trading office in India to run the factories as a managing agent of the company. Later, even when money was raised within India by Indian entrepreneurs, the system of managing agents continued. Almost all modern industries in India were established by managing agents, whose three primary functions were promoting, financing and managing. For the most part the agencies were either family units or small private companies dominated by members of the family. Usually members of the agency family occupied key positions in the companies managed.[2]

The growth of industry in India was characterised by the success of small businesses started with comparatively little capital, which was usually supplied by the managing agents themselves or borrowed from their own credit. The system on the whole worked with success. The typical organisation of a managing agency can be described as highly centralised and personal, with a rigid social structure.

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[2] See K. Chowdhry and R. Tarneja : "India," in *Developing better managers: an eight-nation study* (New York, National Industrial Conference Board, 1961), pp. 89-90.

SUBSIDIARIES OF FOREIGN COMPANIES

Another step in the industrialisation of India before independence was the establishment of British and European companies which set up their own manufacturing and selling facilities in India and generally sent out the top personnel from the home office. The management of the subsidiaries in many respects corresponded to the managing agency system. Authority was highly centralised, relations among the senior staff were informal, and the third-level managers (who were largely Indian) had very few chances of promotion, however much they might merit it. A few Indian executives were, indeed, promoted to the second level; but in such cases not only the possession of technical skill but also participation in the social and cultural life of the senior staff played a significant part.

PUBLIC ENTERPRISES

After India had become independent the Government sought to promote the rapid growth of industrialisation by establishing many key industries in the public sector. These included plants for fertilisers, antibiotics, transport, heavy engineering, communications, etc. These enterprises are quasi-autonomous bodies, and are responsible to Parliament for their functioning.

The pattern of management in public enterprises also is similar in many ways to that of the managing agency or that of subsidiaries of foreign firms. Authority is centralised, and key positions are given to civil servants whose major experience has been in government rather than in industry.

The historical models of management practices provided by managing agency firms, as well as by subsidiaries of foreign companies and public enterprises, were those of centralised authority, with personal and informal relationships at the senior levels, and with key positions held by family members, persons from the "home country" or civil servants, as the case might be.

FAMILY SYSTEM

In order to understand the basis of industrial leadership and of interpersonal relationships (be they conflict or collaboration) it is useful to have some idea of the Indian family system, especially the concepts of authority and of the relationships among peers and between generations.

The most common form of the family system in India is the joint family. This means that members of more than one nuclear family live together. The head of the family is responsible for and has authority over its other members. The children are taught obedience to their elders. The degree of authority exercised and obedience demanded in the Indian family system seems excessive to Western observers, and many mantain that the authoritarian system in India is responsible for the lack of delegation in management and for the serious delays, inefficiencies and low moral in industry.

I would like to suggest that the functioning of authority in a joint family system is somewhat different from the Western concept. The head of the joint family is called the "karta", the "doer" on behalf of the family. It is a concept of trusteeship. There are many subtle constraints operating which prevent authority from taking the form of giving directions without consultation with senior members of the family. Discussing the functioning of authority in a joint family system, Mr. Prakash Tandon, Chairman of Hindustan Lever, had the following to say :

> Contrary to popular belief, a joint family is not built around a central authority. . . . Like any cognate organisation, a joint family has an authority which directs its affairs but there are two peculiar features. First, the authority is diffused and, second, there is a good deal of consultativeness built into it.

The "karta" cannot order people about but has to consult. This he usually does by means of a council whenever a major problem arises. For instance, if it is a question of an external transaction like selling a house or acquiring land, or an internal transaction like sending one of the younger members of the family to a university and arranging for the payment of his fees, etc., he will call the younger men together and discuss the matter with them. He cannot just go ahead and decide without their agreement.... He is the chairman of the board, where he will take very few steps of any importance without consulting the board; likewise the board will meet quite frequently and informally.

When a problem cannot be solved by mutual agreement within the joint family some senior member of the autonomous group is usually approached—perhaps an old uncle.

Referring to the influence of the joint family system on the outlook of the community Mr. Tandon said :

> I find from my personal experience that the traditions of the joint family system permeate into our working institutions and quite often the reactions of people, even managers, to situations of a certain kind are influenced by the norms of the joint family system.

> . . . Indian managers like to be kept in touch and consulted more than their Western counterparts. I think this arises from the diffused authority in the joint family, where the young adults are consulted even though they have no powers and most of the decisions are taken by the seniors. Similarly, the younger Indian managers feel that they ought to be in on things and not kept out, whereas their Western counterpart will say that this has nothing to do with me and they have the right to decide because they have the authority.
>
> . . . In the Western industrial culture, delegation works better than it does in India because authority and responsibility are more clearly defined and not bedevilled by constant consultation merely to keep people happy.

Since children are brought up in large joint families and since there are many children in each family, they acquire considerable familiarity, practice, and skill in dealing with peer relationships. There is much criticism of each other at the peer level, but there is also a high degree of tolerance, which experience and circumstance have taught. For instance, a long gossip session usually ends up with some such statement as "This is his way of doing things!" "It is up to him." The lack of competitiveness on the one hand and the strength of peer relationships on the other are distinctive factors in the Indian social system as compared with Western culture, and have great relevance to the style of leadership and of management practices in Indian business and industry.

The Indian family and social system, therefore, seems to provide sanctions for the exercise of authority—authority which guides rather than coerces; and for critical, tolerant and cooperative peer relationships. Perhaps this could be made clear by an example which is indicative of the quality of authority and peer relationships in the setting of an India company.

The chairman of a certain chemical firm in India had to appoint a new managing director. Both he and the outgoing managing director believed that the best choice would be Mr. Ram, the sales diretor. So he sent for Mr. Ram, and the ensuing conversation provided a good example of the authority relationship between chairman and sales director.

The chairman told Mr. Ram that he himself and the former managing director considered him the ideal person to become managing director. Mr. Ram, however, hesitated to accept, and gave two reasons—he felt inadequate for the position, and he was not in very good health. But he made it clear that if the chairman's considered judgment was that it would be good for the company to have him as its chief executive he would abide by the decision of the chairman. He would be willing to try, although he had no particular desire for better status or salary—

indeed, he would not mind working under somebody who had been his subordinate. As he owed his career to the chairman he would not insist on refusing to move from his present job. The chairman thereupon summed up what the sales director had just said, adding at the end: "But I am not going to make the decision for you; you have to decide for yourself."

The peer relationship was shown on the same occasion in a conversation between the sales director and the production director, who encouraged Mr. Ram to take the post of managing director, and assured him of full support. Lack of competitiveness was very evident here, for the production director knew that if his colleague refused he himself would be offered the post of managing director.

To many Western observers this seems an unusual set of attitudes and implies unusual relationships. Many would doubt if such a person as Mr. Ram ought to be persuaded to become chief executive—indeed, if he had it in him to do the work. In the firm, however, the whole affair was considered quite natural that the sales director should hesitate and that a colleague who was also a rival should try to persuade him and should assure him of loyalty. As a matter of fact, Mr. Ram was appointed managing director and the firm is prospering.

RITUALISM AND STRESS

Another aspect of social and cultural life which has significance is the role of ritualism. Ritualism has implications affecting ability to live under strain and stress, and to take decisions in conditions of uncertainty. In most cultures there are ceremonies and rituals for the important stages of growth and development: for pregnancy and birth, for adulthood, marriage and death. In the Indian scene, however, many more rituals exist—rituals which seem to impinge on the daily activities of life.

There are two important implications of ritual. First, it reduces anxiety, like other "given" ways of doing things provided by tradition and society. The term "precedent" used in the governmental or commercial bureaucracy serves the same purpose. Rituals and precedents help in the smooth functioning of a system or an organisation, and reduce anxiety and tension relating to new situations. Secondly, ritual prevents the development of the exercise of discretion and the power of decision-making in situations of uncertainty.

The introduction of industrialisation in developing countries entails many profound changes in the social and cultural life of people. The rituals that society had developed to deal with problems of growth and to cope with anxiety and tension are no longer appropriate in a technological age. One of the significant aspects of an industrial society is the rate of technological growth and change. For managers (and those related to them) it means living in an environment which is full of changes and uncertainty. This often leads to anxieties, stresses and strains, and problems of identity. In my opinion the increase in the number of management consultants, management development programmes and conferences shows that attempts are being made to find some institutionalized and ritualised methods of dealing with new knowledge and new stresses.

It is important for persons responsible for management development to be sensitive to the concept of authority and peer relationships as they function in Indian society, to the need for providing practice in decision-making, especially under conditions of uncertainty, and to the need for dealing with stresses and problems of identity.

REQUIREMENTS OF MANAGEMENT DEVELOPMENT PROGRAMMES IN INIDA

New technology requires new knowledge relating to production methods, new distribution and marketing methods, new concepts for organising and planning, new methods of information control and so on. A fund of factual knowledge of management subjects will be indispensable. Business managers and leaders also require an understanding of the social, economic and political environment in which business operates. They need, too, the capacity to discern and evaluate relevant facts in complex systems of inter-relationships, an ability to make choices among alternative methods, and a sense of security and identity so as to sustain the integrative forces in their society. Management development programmes must therefore provide not only new knowledge in management subjects but also a familiarity with management practices as related to a coherent social and cultural system.

In this connection it may be interesting to note how the East India Company encouraged its administrators to acquire familiarity with the social and cultural factors related to administrative and management practices. In the eigthteenth century the company encouraged its administrators and officers in India to marry women of the country, set up homes, and raise families. One notice in a gazette from Fort St. George in Madras, for instance, states that the Company offers a bounty of £5 to all men who do this. The custom lasted for a century or so and it was quite usual for the officers of the Company to marry into upper-class Indian families. This system offered many advantages to the Company. It also offered security and stability to the administrator and made him feel less of a foreigner in the country. It permitted him to establish relationships with Indian society and to acquire in the process a deep understanding of the social-cultural factors of the country. Knowledge of local customs and languages, of what constitutes injury, insult, or challenge, will affect administrative practices. It can be acquired only through experience in a society, and can rarely be learnt from books.

In my opinion, therefore, management development programmes, especially in developing countries, must provide knowledge of management subjects; knowledge of management practices as related to a social and cultural system; practice in decision-making; opportunities for dealing with stress and problems of identity.

KNOWLEDGE OF MANAGEMENT SUBJECTS

Knowledge per se is free of social and cultural factors. Knowledge of management subjects that derives from the mathematical and behavioral sciences can be given without modification in any culture. The selection of what knowledge and how much of it should be in a programme will be determined largely by the level of the participants and the complexity of the knowledge they require in relation to their businesses. Western consultants often suggest that there is no point in including highly sophisticated quantitative methods or computer information systems if these are not relevant to the educational level or to the industrial base of the country. Although analytical knowledge of a higher order cannot be taught unless the preliminary steps have been learnt, it is wrong to gear the programmes to a level which would have been relevant in the industrialised countries a few decades ago. The developing countries are going in for the latest technology, and management knowledge must be related to it. Also in India, as in many developing countries, there is a very diverse technological base, from the bullock-cart to the supersonics level of technology. Sophisticated technology and related management practices act as a spearhead of development in the country.

FAMILIARITY, PRACTICE AND SKILL

There are many decisions in management which require familiarity with the complex inter-relationships existing in a culture—a familiarity which comes from an "intuitive" feel of things, and from having been born in a culture. A skilful carpenter who works with various kinds of woods, for example, has a great deal of familiarity with the properties of each. He knows what they will and will not do under certain conditions—at least sufficiently for his purpose of fashioning them into useful objects. He does not have, however, that kind of analytical knowledge about woods sought by the scientist.

Similarly a manager requires knowledge of the kind of phenomena he deals with. In any culture there are certain prescribed and customary ways of doing things. As a person grows up in his culture he learns to relate himself to the other persons around him: he learns the kind of behaviour expected of him and what he can expect from others. These norms are a part of the individual's way of life sanctioned by his society. They are the unstated assumptions, the most scared and cherished beliefs on which behaviour is based. A manager cannot ignore them. Very often he shares these values with the people he is managing. A management expert who is dealing with a culture entirely different from his own must be sensitive to the "scared" values and behaviour of a people before he can effectively examine these assumptions and relate them to business and management practices. Many of these assumptions are difficult to identify, and even more difficult to express in words. Although the behavioral sciences have made significant advances, knowledge about society, cultures and their relationship to management practices has not progressed much. That is why familiarity with, or the intuitive understanding of, the environment and the people is important. The role and functioning of authority, the nature of peer relationships, the use of competitive methods, ideas of responsibility, integrity, social values—all these influence management practices in a given society. For national and international institutions dealing with management education or management development programmes it is very important that case research be done before teaching responsibilities are undertaken. Management subjects like administrative practices, business policy and marketing are especially culture-bound, and require to be understood in relation to the social and economic environment of the country.

PRACTICE IN DECISION-MAKING

The importance of practice in decision-making, especially in the Indian culture, has already been mentioned. The emphasis on authority and obedience, and on ritualism, has not developed or provided sufficient opportunities to practice initiative and decision-making in situations requiring new and modified ways of behaviour and doing things. How then can practice in decision-making be provided in management programmes ?

CASE METHOD

In providing both familiarity with management practices and practice in decision-making, the case method of teaching seems so far the most promising. Under this method the participant is constantly and repeatedly being presented with situations, each different from the others. Each case presents him with an opportunity to think for himself, to project himself into the situation, and to decide on a course of action to meet the particular situation and circumstances. I know of no other equally effective method of giving a man the opportunity to meet new situations in which he has to grapple with fresh combinations of facts, half facts, conflicting opinions and values. In each situation, in each case, the executive is asked to analyse the circumstances and arrive at a decision. During a month's programmes he is presented with at least 70 different situations for analysis and decision-making (24 working days × three cases per day = 72 cases).

In India, where we have used case discussion in management programmes, the experience has been that participants do an excellent job of analysis but falter when it comes to deicision-making, especially when an unpleasant decision needs to be taken. The instructor then relentlessly pushes them to reconsider "soft opinions" and "hard choices" and to think out the implications of choosing any one of the alternatives and rejecting the others. Interestingly enough, the assumption that many Western observers made, that the use of case discussion methods would be difficult in the Indian context because participants would be reluctant to discuss in a group situation and challenge each other's point of view, was completely unfounded. The role of the instructor in the case method is that of an authority who guides, and under these conditions of "authority" and "peers" the participants in fact were on home territory, and did well. It was also found in case discussion that the participants would do a good job of analysis and diagnosis but tend to leave the final decision to the seniors. But practice, day-in day-out, provided them with opportunities for independent thinking and encouraged them to take responsible decisions and action.

DEALING WITH STRESS AND PROBLEMS OF IDENTITY

In the newly independent and developing countries there is a great sense of emotional uprootedness. Their social, political and economic institutions are all being challenged by nationals and foreigners alike; there is a sense of urgency to achieve planned goals; a sense of impatience and sometimes dis-illusionment with the new goods of industrial society. All this means that persons in developing countries are faced in many ways with greater doubts, anxieties, stresses and strains. Tradition has as yet not sufficiently developed in industrialisation; there is not enough familiarity with new things and with new ways of life. The younger generation and the younger managers cannot fall back on the experience of the previous generation. If the experience and authority of the father have to be discarded, there are a hundred other things that must also be discarded with it, for at present no adequate substitutes exist. New institutions for spreading new knowledge and new institutionalised ways of dealing with new types of stresses become especially important in developing countries—at least in India.

When the learning and re-learning is related to basic relationships—as it is in management development programmes—there are serious problems of identity. To quote Margaret Mead, it is as if "a man is in fact being asked to turn his back on the past, to discount previous accomplishments, to divest himself of earlier prides, to disidentify himself with old practices, old allies, and even old loves."[3] Management development and training is no-merely a question of new knowledge and new attitudes. It involves a loosening or abandoning of old and cherished ways of doing things, and these changes can lead to emotional crises and to problems of identity.

In India, management and management development are very much at the same stage as adolescence in the growth of the adult personality. At critical stages of development persons require a moratorium for experimenting with new attitudes, relationships and alliances. India is now going through such a stage.

Just as technological, social and cultural changes are inevitable in a society moving towards industrialisation, so are the accompanying conditions of stress. There are many different ways of handling stress; management development programmes are among the methods used by managements and executives. Some typical examples of executives who used management development programmes as a moratorium may be cited.

Fry is 32 years old and is the president of a small electronics company. He joined his family business six years ago when his father died. He worked two years as vice-president and then became the president. Fry's mother is the chairman of the board of directors and the secretary and treasurer of the company. There is a general manager who has been with the company for many years. Between the chairman and the general manager Fry does not seem to have much of a role. As he said—"I feel like a paper president; I am neither made to feel useful nor wanted in the organisation."

In deciding to come to the programme Fry was trying to escape from the organisational and family conflict and the psychological isolation in the company and the sense of being unwanted. He had arrived at a stage where he felt the need for some critical decisions. Should he declare independence from his mother's interference and authority? Should he let the general manager go? And what would be the implications and consequences of his actions to the company, to himself and to his family relationships ? Does he have enough confidence to leave the family business and seek employment elsewhere ?

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[3] *Cultural Patterns and Technical Change, op. cit.*

Missumi is 28 years old and is working in an international trading company as an assistant to the vice-president, international division. Missumi's father is the president of the company, and is also chairman and president of a number of other economic and commercial organisations in the country. During the interview Missumi mentioned that he was not sure that he wanted to work in his father's company. He said : "I am watched all the time by everyone and there is no recognition of my worth because I am considered my father's son. I have to be doubly careful and doubly good in everything I do. I feel as if I have been put on the railway track and am going along without any choice in the matter. . . . I have come to the programme to find out: who am I really ?[4]

In many family owned and managed firms, especially when they are small and medium sized, the senior positions are occupied by family members. The position in the management hierarchy depends to some extent on age and the position in the family hierarchy. The strengths and weaknesses of family relationships influence the working relationships in the firms.

In general, however, young executives in family businesses live in an atmosphere of conflict, torn between obligations to the family and to the family business, between the social pressures of family and community, the norms of the profession, and the demands of technological culture. Such conflicts are found among many young executives, especially in India, where 80 per cent of businesses are family owned, and where family obligations play an important part. Young executives, therefore, especially in India, need a sanctioned moratorium for minimising stress and anxiety, for rejecting old roles and experimenting with new ones, and for exploring new relationships and new careers.

THE ROLE OF THE EXPERT AND INSTRUCTOR

Margaret Mead, in discussing the role of the foreign expert in technical assistance, mentions "the question of the extent to which the special preoccupations and value systems of the members of international teams, drawn from Western cultures or educated in Western values, affect the work which such teams are able to do."[5] She also points out that—

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[4] K. Chowdhry : "Management Development Programmes: Moratorium for Executives" in *Human Organization* (New York, Society for Applied Anthropology, 1964), Vol. 23, No. 3, pp. 256-257.

[5] *Cultural Patterns and Technical Change*, *op. cit.*, p. 19.

> The objectivity which combines respect for the values of another culture, a determination to bring about change in ways which promote the mental health of the population, and a certain amount of detachment from the clash of old and new values going on within the culture, are invaluable assets which come from long experience in working with members of other cultures. Many of the members of technical assistance teams will not, however, have had that experience, that sum total of memories, of felicitous suggestions and disastrous mis-steps, of plans that misfired and plans that succeeded inexplicably, which make up the delicate certainty of the experienced expert.[6]

These statements indicate to some extent how complicated and delicate a task is the introduction of change and of management development into old cultures rooted not only in the habits of the people but also in the relationships between generations, in the way the child is hushed, rewarded and punished, in the vocabulary of the people, and so on.

The role of an instructor in management development programmes in developing countries must be seen in three contexts: first, the changing social, economic and political conditions, and the accompanying doubts, stresses and strains; secondly, the limited existing knowledge of management subjects; and thirdly, the application of knowledge and practices developed in one culture to another. This has two implications.

The instructor or the expert in the field of management education, especially when working in a different culture, cannot play the traditional role of imparting wisdom or of knowing all the answers. He needs to discard the accustomed role of dominance, of being the licensee of knowledge. This is one of the most difficult things he has to do—to create a new role for himself for which there is no model. But it seems that, in management development programmes in developing countries, he must either create this new role, encompassing compassion, humility, and objectivity, or fail.

As we have seen, management education requires some knowledge that is objective and is based on research, but to a large extent it consists of clinical insights. This means that instructors dealing with management development must relinquish the kind of security that comes from employing more objective methods. Just as we want the participants to relinquish the security of old ways of thinking and doing things, so also we want the instructor to relinquish the security of old styles of teaching, based on authority of position and objective knowledge. The security and satisfaction derived from professional omnipotence are difficult to give up. The instructor must come to the class with no predetermined or readymade solutions: he must follow the Socratic method of encouraging dialogues, of keeping an atmosphere of learning on both sides.

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[6] *Ibid.*, p. 15

The foreign expert brings with him an intellectual selectivity which often blinds him to some of the relevant meanings of experience in a given culture, but he also brings an "uncorrupted" way of noticing things which escape the attention of those born into the culture. To observe feelings, relationships, or ways of doing things in what is to him a foreign culture, and to pick out significant meanings, an expert must have first learnt to recognise them in his own experience.

Management development programmes often convey to the participants an impression of censure of their existing ways. In the process of examining old and new management practices, insufficient attention is paid to helping the individual to sort out his conflicts, clarify his crucial choices, and find a new identity in the new society that is being created.

I therefore suggest that every instructor and expert needs to acquire—

(1) A respect for the dignity of the culture he works in.

(2) A new role that is based not on authority of status but on objective knowledge.

(3) A tolerance for the conflicts and uncertainties of the participants, and the strength to withstand his own conflicts, insecurity and uncertainty as they arise in the unfamiliar surroundigs of a new culture.

(4) An understanding of his own motives.

(5) A sense of responsibility for the mental health and welfare of those he tries to change and develop.

If programmes of management development question some of the more crucial aspects of family, social and institutional relationships, it is equally important that those responsible for such programmes maintain a continuing relationship with the organisations they are trying to develop and change. Many young executives come to programmes to settle questions of responsibility and obligation, to clarify roles and relationships, and to seek knowledge. Once the participants have joined the programme the instructor cannot escape the responsibility of working through some of the problems and concerns they bring. Opportunities for further help should be provided if the participant or the organisation so desires. It would be quite wrong to leave the participants in an unresolved emotional state or one of conflict. An institutional relationship where the instructor has some kind of continuing commitment, rather than one just for the time span of the programme, is essential.

The instructor, and even more the foreign expert, are looked upon by the participant in the programme with a peculiar mixture of over-esteem and mistrust. They react to this by an equally peculiar mixture of desperately wanting to live up to an image of themselves, and of anger against responsibility they did not seek and find difficult to meet. We all bestow this kind of an image on people in significant positions—superiors, doctors, leaders, and even adversaries. This transfer of an early "father image" to later individuals and events has been called "transference" by psychoanalysts, and the reaction to it "counter-transference". It is of great importance that the instructor and the expert realise what is happening and do not permit themselves the luxury of playing "God" or the "autocratic," "benevolent" or "karta" father, for these very relationships are being tested in the learning situation. The instructor, especially in a foreign culture, will be confronted, sometimes above and sometimes well below the threshold of awareness, with the conflict between the desire for an emotional participation and acceptance and the rigour required to be vigilant about his own motives.

PART SEVEN

Understanding Social-Cultural Environment

Metal Company of India (Meco) (D)

Gobardhone Bonamali Bandhopadhya Company (P) Ltd.

Alpana Chemicals

Atlas Corporation

CASES

Metal Company of India (MECO) (D)

Some information about the foundry has already been given in the MECO (C1 and C2) cases. A more complete description of the relationship between the foundry production and sales departments is given in this case.

PRODUCTION PROCESS

Making NFM castings required a large number of workers at each of the several stages, all of which had to be coordinated in order to ensure quality castings. Raw material had to be melted to the proper specifications, poured into freshly prepared sand molds designed according to the particular part required, cooled, and then machined and fettled to final specifications. The sand for the mold required special attention, as did the cores for the molds; the final mold was then prepared by hand or machine, depending on the type of casting desired.

MECO produced 1500 different castings for various customers, the designs for which were in a continual state of modification and revision for improvement. While rolled products were produced for the most part in basic sizes according to standard specifications, castings were produced for customers who made frequent changes in design, necessi-

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This case, Metal Company of India (MECO) (D), was prepared by Professor Allen R. Cohen, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1964 by the Indian Institute of Management, Ahmedabad. Used by specific permission.

tating changes in all other steps in the process. Several departments in the foundry had to work closely together to get the proper mold ready to receive the hot molten metal.

MARKET CONDITIONS

The market for non-ferrous castings, unlike that for rolled products, was not directly controlled by the Government. While approximately 60% of all the non-ferrous castings made in India were sold to a Government-owned enterprise (GOE), there were no price, production or allocation controls. Sales to Government and non-Government firms alike were generally made by competitive bidding. During the late 1950s and early 1960s MECO had enjoyed a seller's market, where demand outstripped the industy's capacity. In 1963, however, additional foundry capacity was installed in India and competition for sales began to stiffen.

As Mr. Pramod Gokhale, MECO's 36-year-old Foundry Sales Manager, put it :

> Until recently we were in the happy position of being in the seller's market. Then the problem was how to say no to our regular clients for their increased demands. We had built up a very big clientele and we had to regulate supplies amongst them. Now, however, things have changed.

Because of the high demand for castings in the late 1950s, MECO's policy had been, apart from a few preferred customers, to accept only high profit business. Since the early 1960s, however, concern for future development of business and for growth of the economy had led to a change in policy, whereby the total production of MECO was generally allocated for sales among different industries. With each allotted industry, apart from the preferred customers, efforts were made to get the highest profit business consistent with a balanced production load on the foundry. Mr. Gokhale explained :

> We supply castings to a certain industry in this town though it is a low profit item. We could get other higher-profit jobs to substitute for this business. However, this particular industry is a steadily growing one and could be our regular clients for a long time to come. If we do not supply castings to them at a reasonable price now, it would affect their growth. We have to give certain preferential prices for maintenance and non-recurring orders. By importing technology and developing new items, never before made in India, for the G. O. E. and then by selling them at an attractive price, we try to be a little ahead of competition. Some of the development

is even undertaken at a loss. In the last year or so the supply position of castings has been steadily improving and we have had to deviate somewhat from our original policy of ear-marking for industries.

We are not very keen on business where there is ready competition and prices are low. However, our decision is always based on the overall lead position on the foundry at that time.

We take pride in being able to supply consistently good quality castings. New industries which want sophisticated castings approach us from all parts of India even though our prices may be slightly higher and other foundries exist nearby. We are now shifting more towards high quality castings and want to eliminate standard castings where we anticipate competition in the near future.

CUSTOMER RELATIONS

Mr. Gokhale went on to describe relations with MECO's customers :

Because we are in a seller's market, we get a very large number of enquiries, in fact more than we can handle. Hence we do not make any special effort to cultivate new customers. However, we are on the lookout and when we have information regarding new industries being developed we keep in touch with them.

When we receive an enquiry from customers which we consider as good, we quote to the customer. For intricate castings or castings required for development, we usually ask the customers to send their technical representatives for discussions. In the case of Government requirements there are a number of forms and tenders to be filled out. They normally place orders on the basis of the lowest price: as our prices are usually high, we get orders from them mostly on the basis of good deliveries.

The Governing body of the G. O. E. is not only a big buyer but also the biggest single source of one of our raw materials. Hence, we have a mutual arrangement whereby we try to meet their requirements of castings and they in turn supply the raw materials to us. We contact them personally and often go to see them.

The different area-wise divisions of the G. O. E., though operating independently, pool their requirements. These are then procured for them by the Director General of Supplies and Disposals on an all India basis. Because of the delay in such procurement, the area divisions buy smaller quantities of their requirements directly. We often help the local divisions to get their direct requirements by accepting smaller orders than we normally would.

Many of our customers visit us in our office, and I have to spend a considerable amount of my time with them. Since I am also an engineer, the normal technical queries can be discussed by the Sales Department, but for all major problems, we invite our Production Planning Controller, Mr. James Whitehead, to join us during discussions. (For a partial Organization Chart, see Exhibit I.) Mr. Whitehead is a great help because apart from his technical background, he has a way of talking which is very convincing. The sales-cum-technical person is very good, in this business. Quite often the discussions are held in Mr. Whitehead's room where exhibit drawings can be better presented and discussed.

In the case of complaints we are rather particular that the matter should be very thoroughly investigated. On one occasion a complaint originated from a site in the jungle. Mr. Whitehead went to investigate the complaint along with our clients; the site was in such a remote place that even the client's own representatives had never been there. The investigation, apart from clearing the complaint, created a very good impression on our clients.

PRODUCTION SCHEDULING PROCEDURES

Mr. Gokhale then stated the procedures followed in co-ordinating foundry sales with production :

> At the end of each month the Production Planning Department in consultation with the Sales Department prepares a production plan for the next month for both the Foundry and the Machine Shop. Castings which are required in the month but cannot be machined in our own Machine Shop are farmed out to subcontractors. Before the plan is finalised it is usually discussed with me; delivery commitments made for the month but which cannot be kept up are usually discussed in detail.
>
> In the case of every new enquiry the drawings are sent to the Methods Section of Production Planning for estimation, and to the Production Planning Department itself for details of delivery commitments. Once the order is accepted by us, details of the acceptance of the order are sent to the Production Planning Department, which in turn, schedules the production. Delivery time is always quoted by us in consultation with the Production Planning Department and they keep a load chart indicating the position for the whole of the coming year.
>
> A number of important clients reserve a fixed capacity per month. This capacity is carried on our books as orders received though, in fact, the actual details of the orders are not given. A few months before the actual period, the clients give details of their requirements to cover the reserved capacity. In some instances, we have standing

instructions to supply certain quantities of items per month and orders are renewed only when previous orders are almost complete.

The load position for the coming months is always known and the Sales Department tries to book orders to fill the gaps in the particular range of castings required. I have frequent discussions with Mr. Whitehead regarding the foundry load and development of new items; discussions with the Machine Shop In-charge are, however, infrequent, and only occur when certain orders are delayed. I also deal with Mr. Whitehead's assistant who plans the day-to-day load in the foundry and is usually in a position to indicate the position of any order. Mr. Pande (In-charge of Methods in the Production Planning Department) is also consulted regarding the technical feasibility of certain items and problems related to estimates. However, for intricate items we usually refer to Mr. Whitehead, particularly if it is one of our important clients and we are interested in taking the job.

Once our orders are finalised, the actual details are worked out by my department and instructions issued to the Production Planning Department. When the month's production plan is prepared the sales supervisors under me scrutinise it to see that all commitments for that month have been included in the production schedule. They then call upon the Production Planning Department to make suitable adjustments. If for any reason the job cannot be taken on, then the Sales Department would inform the customer of the likely delay. Unless the situation is serious and upsetting, I usually do not come into the picture. In the case of priority items and important commitments which cannot be kept up in time, I usually try to explain the matter to the clients.

CASE WRITER : Do you have problems coordinating with the production side of things?

GOKHALE : Some, but we iron out most of them at our own level. The Vice-President rarely comes into the picture unless we are really out of control on any specific item. I usually keep him informed of the day-to-day problems and do not go to him to resolve the normal differences. If an item is neglected, then I send a letter to Mr. Whitehead with a copy to the Vice-President. Mr. Whitehead would then know that this requires special attention and it may be necessary for me to take it up with the Vice-President. Then during my discussions with Mr. Whitehead, I will explain the thing to him. In one particular case, my assistant brought to my attention that a particular item which was urgently required had already been delayed. He had discussed the problems at his level in the Production Planning Department but felt that sufficient progress was not being made.

I talked to the Production Assistant directly and found out that the pattern was still under preparation. I then talked to the person in charge of the Pattern Shop and stressed the need for urgency on the job. Thereupon they promised to release the pattern the same evening. Such informal talks save a number of days from usual procedure. In another case I talked to Mr. Gajjar,* the Foundry Production Supervisor, about an item which was very urgently required. He said that the cores were continuously breaking. I suggested that, in view of the urgency, the cores should be patched up and used on priority. I also informed the Fettling Shop Supervisor, who happened to be there, that this particular item was on priority, and should be processed through as such. Later on, when I met Mr. Whitehead, I informed him of the position on the Shop Floor. This is wrong, because I did it without Whitehead, who should have been involved at the beginning, but it works.

CASE WRITER : He doesn't object?

GOKHALE : So long as my instructions do not go contrary to the production plan or to his own instructions he doesn't mind. If, as happened once last week, instructions are required contrary to what Mr. Whitehead had given earlier, then I will first check with him. In this particular case, I briefed him on the situation and how the delay might upset the client's other production schedules. He said, "If that's the case then I would certainly change the priorities," and he immediately did so.

CASE WRITER : What happens on the occasions when you cannot agree?

GOKHALE : If his arguments are valid then I accept them. I do tread on his feet quite often, but he doesn't mind because we are going towards the same goal. I do get upset if things are going very slow. You see, the despatch programme is prepared by the Production Planning Department in consultation with Sales. It is usually open for us to switch priorities within this programme. If the overall production is less than anticipated for that month and some items are likely to fall short, then I indicate which item will need priority and which particular job should be allowed to fail. Since Mr. Gajjar and Mr. Whitehead are both available at lunch time, a number of minor points are straightened out there and only formalized later. For example, the programme for December was properly balanced and in order. However, some of the patterns were not ready for moulding, and thus the programme had to be changed to use whatever patterns were available. From the sales point of view this was not to our liking, but to keep a balanced load on the foundry we had to take on some of the next month's delivery items for the earlier month. Most of these discussions were on the telephone; it was all done there and no one was worried about it. This goes on whenever necessary.

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*Gajjar later explained that he seldom had contact with Gokhale; if Gokhale complained about delay on a job, or wanted greater urgency Gajjar would send him to the Production Planning Department because they "have the whole perspective in view." Occasionally they discussed problems informally. Gajjar described his job as "mostly technical, to get the production out." He received production schedules from the Production Planning Department and saw that they were implemented.

CASE WRITER : Whom do you talk to in such situations?

GOKHALE : Normally, Mr. Whitehead or his department. Since I know the department well, I often drop in on my way back from the shop. A number of minor problems or changes we make there on the spot. This month, because the patterns were not ready, we found ourselves with certain excess capacity. We had recently refused a few orders from some customers for want of capacity. I called them up on the 'phone and informed them that we could accept their orders for quick deliveries provided their patterns were ready and could be delivered to us immediately. We were able to get orders for over 30 tons to fill the gap.

The Vice-President did not know that this had to be done. I'll tell him the next time I have something else to see him about. The client whose orders we accepted had previously approached the Vice-President and me, and we both had to refuse to take the order because of scarce capacity.

There is co-ordination at all times between Production, Planning and Sales at all levels. Apart from Mr. Whitehead and myself meeting to talk over various points, the assistants at various levels also meet for discussions. Mr. Whitehead may call my assistant to clarify certain points or to sit in during one of his meetings with his assistant so that my assistant can indicate the customer's views on some of the points under discussion. In calling my assistant it is not necessary that Mr. Whitehead should inform me. Afterwards my assistant will come and explain the details of the meeting. Sometimes when Mr. Whitehead wants me to attend a meeting and I am not free, I will send a junior man, and he won't mind. Many regular customers know Mr. Whitehead and go to him directly. When they do, he calls me and I either go there or they come to my office. For explaining technical matters by letters to our clients, quite often Mr. Whitehead dictates the technical part of the letter and explains it to my assistant. This is then suitably incorporated in the letter in the sales department.

Rather than merely making the casting according to a drawing which may not be basically correct, we prefer to discuss the technical aspects with our regular customers. For example, recently I noticed that the casting required by a customer would be rather difficult to make. Later I discussed the drawing with Mr. Whitehead and the customer and suggested certain modifications. The client approved these modifications; we made the changes right there on the drawing board, with the result that we were able to accept his order and give a more functional casting. Similarly, another regular customer first brings us sketches of their product, which they discuss in detail with us to find out if we need any modification to suit the casting methods. Their final design is based on our recommendations. That way they are able to save a good deal of time and money.

When customers come, Whitehead doesn't mind coming to my office, and if there are drawings to show we'll go to his room because he has large drawing boards there. I'd say that we are not treading on toes, but rather encroaching on each other's territory without bad feelings. Our Production Engineers visit our big local customers regularly to discuss the day-to-day problems and also ways and means to improve the product. Mr. Whitehead or others might also tell us of improvements which can be made. We do it this way because we can help our customers best.

CASE WRITER: How do you manage to maintain these smooth relationship with production ?

GOKHALE : I know most of the production people. Previously, as the Industrial Engineer, I had been in very close contact with them. Even now when I take a round of the shop, I meet some of them and enquire about the position of items in which we may be interested at that time.

CASE WRITER : You don't have to work hard to maintain relationships then ? Is production particularly enlightened ?

GOKHALE : The relationshps in this company have always been fairly smooth. If there are problems I always listen to them and see how best they can be solved. It is better to go with them rather than against them.

CASE WRITER : Is the same thing true in reverse ?

GOKHALE : Yes. Sometimes there are differences but we always find a way out. It is their way or our way.

A somewhat similar point of view was expressed by the Production Planning Manager, Mr. James Whitehead. A 43-year old Englishman, he had been employed by the Company for seven years, and had almost 20 years of foundry experience. He, in consultation with Mr. Gokhale, did the production scheduling for MECO's castings.

In discussing his relationship with the Foundry Sales Department, he said :

There are no real problems in the true sense of the word. If there are any at all, they are at the lower level. If we are running a few days late, the sales people don't like to get a telegram saying, "where is the item ?" At the lower echelon, animosity creeps in and has to be settled. On the commendable side our relationships are tantamount to team-spirit. The sales people are non-technical but because these doors are open, all of them will come down here directly from the customer and just ask if we can do a particular job. If the problem is more technical they will ring up and ask if we are free, then bring the customer here. Afterwards they may take notes and prepare a draft which they will then take back and check with me to see if it's o.k.

Of course I feel that they interfere with my scheduling, but that's part of my job; when they don't interfere I will think that something is wrong, that they don't have their ear to the customer. Naturally I will have to upset a schedule to make a sample for a customer; we are one of the few good non-ferrous metal foundries in the South, and if a local industry has a breakdown, we cannot ask them to go all the way to Bombay. The sales people may come down and say "can we do this," and I say "I haven't met a case where we couldn't." This helps MECO's reputation; we are not too big to do a small job. This helps the companies involved and also the nation.

When all is said and done, what is upset anyhow ? It just takes some personal effort. What's in another one or two jobs ? As long as I know that there is some justifiable reason, there is no hesitation on either side to walk in and ask for something in an hour.

MEETING WITH A SUPPLIER

One morning a representative of the company from which MECO purchased a special sand for making molds, arrived from Bombay and made a goodwill visit to MECO. When Gokhale heard that the supplier's representative was coming to the Company's offices, he called Mr. Whitehead on the inter-com, informed him of the visit, and told him that he would bring the representative to Mr. Whitehead's office if it was necessary. Both Gokhale and Mr. Whitehead were anxious to discuss the price and quality of the last batch of sand, which had been unsatisfactory.

The representative arrived later than expected, and was shown to Gokhale's office. Gokhale greeted him, and then began to complain about the poor quality of the sand supplied. He explained just why the sand had to be of a certain minimum standard in order to produce a particularly difficult casting which MECO was trying to develop.

After five minutes of explanation, the door to Gokhale's Office swung open, and Mr. Whitehead walked in. He said that he had been waiting downstairs in his office, but that he was very anxious to explain to the representative why high quality was important, and he had decided to join the meeting. Mr. Whitehead immediately began to explain in detail to the supplier's representative what the trouble with the sand was. He started from the beginning of the process, and covered many of the same points Gokhale had, as well as added several others. Some extracts from Mr. Whitehead's conversation with the representative are given below :

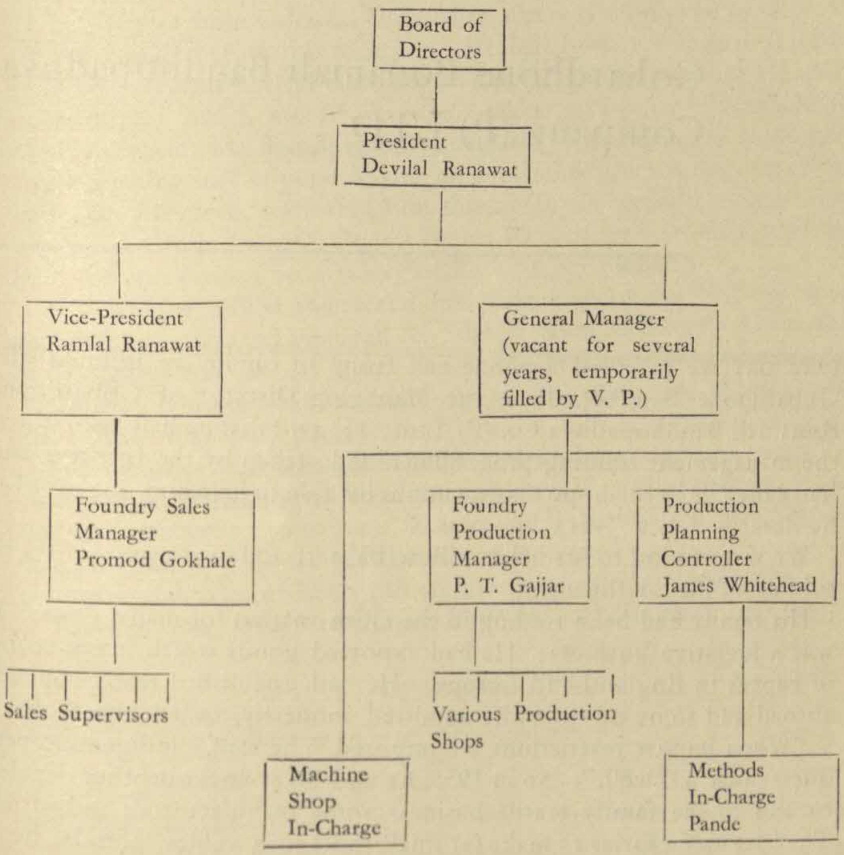
> This foundry is an open shop for any idea or experimentation. We'll try anything that a customer or a supplier suggests if we think it can result in a lower price. If you could just work on getting the price of your sand down, I can assure you that we will pass on the savings to the customer and benefit the entire country. I have been told that the castings for which I specially need this sand cannot be made in India. I am fully prepared to meet that challenge but I can't do it if the raw materials are no good. You must realise that you have thrown a whole development plan off here, and by doing so you have thrown off the development plan of the customer, and indirectly, the development plan of the nation. If you can reduce your price from 800 to 200 rupees then we might be prepared to use ten times as much special sand for castings.

The supplier's representative, who was new to his company and had no authority to negotiate, agreed to carry the grievances about the quality and price of sand to his company, and the conversation ended. During this time Gokhale only added supportive comments to Mr. Whitehead, but for the most part let Mr. Whitehead do the talking.

MECO (D)

PARTIAL ORGANIZATION CHART

(Prepared by Case Writer on the basis of description by executives)


Board of Directors
President Devilal Ranawat
Vice-President Ramlal Ranawat
General Manager (vacant for several years, temporarily filled by V. P.)
Foundry Sales Manager Promod Gokhale
Sales Supervisors
Machine Shop In-Charge
Foundry Production Manager P. T. Gajjar
Various Production Shops
Production Planning Controller James Whitehead
Methods In-Charge Pande

Gobardhone Bonamali Bandhopadhya Company (P) LTD

One day we received a phone call from an obviously agitated Mr. Gobardhone Bandhopadhya, the Managing Director of Gobardhone Bonamali Bandhopadhya Co. (P) Ltd. He said that he had read about the management training programmes undertaken by the Institute and had called us in the hope that we might be able to help him out of what he described as a "very big mess."

We went round to his office at Bow Bazaar, and over a cup of tea he told us of his predicament.

His family had been trading in the cloth market for many years. It was a lucrative business. He had exported goods worth many crores of rupees to England and Europe. He had established many contacts abroad and some of them, he admitted modestly, called him Gobar.

"When import restrictions are imposed," he said, "indigenous products must sell well." So in 1955, he and his younger brother decided to add to the family textile business some manufacturing industries. They set up factories to make (a) small tools such as files, chisels, hammers, etc., (b) nuts and bolts, and (c) hurricane lanterns.

He recruited two engineers. Bhaskar Menon was to establish the small tools factory. Menon had an engineering degree from U. K. with

This case, Gobardhone Bonamali Bandhopadhya Company (P) Ltd., was prepared by Professors Ravi J. Matthai and Ishwar Dayal, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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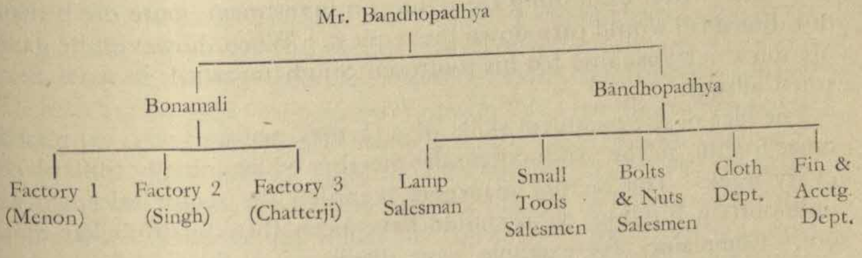
five years' working experience as a planning engineer. Ranbir Singh was recruited to start the hurricane lamp factory. Singh was a graduate in mechanical engineering from a North American Institute of Technology with three years' experience in two very large engineering companies as shift engineer. Both engineers were aged 28 when recruited and were earning a total of Rs. 750 each before they joined Mr. Bandhopadhya. Each started with G.B.B.Co. (P) Ltd. on a salary of Rs. 1200 per month.

For bolts and nuts factory, Girish Chatterji was transferred from wholesale cloth department of the Company. Chatterji had taken his M. Sc. degree from Calcutta University and was employed by G. B. B. Co. two years before this venture. He had been a salesman for two years in a pharmaceutical company in Calcutta before joining Mr. Bandhopadhya. Girish was 25 years old when he joined as a wholesale cloth salesman. Mr. Bandhopadhya said that Chatterji was intelligent and a pushing sort of person, and he decided to give him a chance to better his prospects. He sent him abroad for six months to learn how to make bolts and nuts. On his return he was put in charge of the bolt and nut project on a salary of Rs. 650 per month.

Mr. Bandhopadhya registered his private company, set up three separate factories, and invested Rs. 5 lakhs in each factory. His authorised capital was Rs. 30 lakhs, the issued and subscribed capital Rs. 15 lakhs. Through his contacts abroad he obtained the technical know-how for these products.

The factories were located in a three-acre plot of land in north Calcutta owned by his brother Bonamali and himself. The brothers divided the work between themselves, 30-year old Bonamali looking after the factories and 45-year old Mr. Bandhopadhya looking after finance, accounting and sales of both the engineering products and cloth.

The Company structure during 1955 was as follows :



Under Bonamali's guidance, the three factory managers erected their respective factories, installed the plant and started production during mid-1955. Three salesmen were employed to conduct the sales of the factory products under Mr. Bandhopadhya's supervision. They started on a salary of Rs. 550 each per month.

By 1958 sales of factory products had reached Rs. 150 lakhs. The three factories had 300 workers, a B. Com. Book-keeper for each factory and three engineers with diploma in mechanical engineering in addition to the three managers. The sales organisation had 12 "industrial" salesmen.

Mr. Bandhopadhya said that the Company was doing extremely well, but trouble had already started.

The factory managers like and respected Bonamali who treated them as equals and tried his utmost to make them work as a team within the Company. Menon and Singh, however, being qualified engineers, would not regard Chatterji as an equal. According to them, Chatterji was an unqualified, upstart fit to be a stores clerk. Bonamali was aware of this feeling and exercised a restraining influence on the two engineers. The resentment was therefore not openly expressed, but Bandhopadhya felt that Chatterji, who often visited him at his residence, often complained that the others were against him. So he kept to himself as much as possible and regarded his factory as out of bounds to the others. He even resented their walking across the shop floor.

Bandhopadhya said that Menon was perhaps a better engineer, but Singh's factory gave higher output and contributed more to the Company's profit pool. Menon was reserved and honest, but unbending; Singh was a loud extrovert with drive, inclined to be rash and could strain facts to suit his purpose. Chatterji was a shy person who felt that his future progress depended on how indispensable he could seem. He often said that he was not good at talking, but that he had worked with his hands and had all the experience of an engineer without the two letters after his name.

The two engineers, meanwhile, had become extremely competitive. Each asked Bonamali for expensive equipment which they claimed would cut costs. After examining the return on investment, more often than not, Bonamali would turn down the request. When, however, he gave Menon a new machine for his toolroom Singh regarded it as a personal affront.

The idea of the technical skills of a factory manager was expressed more forcibly in the production sales meeting which initially took place every week. The factory managers regarded the senior salesmen as unimportant hirelings who should have been thankful for what they got. Complaints, for example, were dismissed, as far as the salesmen were concerned with "this is a technical matter of which you have no knowledge." When Bonamali investigated a complaint, the defects were located and corrected.

Bonamali had to conduct every production/sales meeting to make sure that they were constructive. Chatterji, who tried his utmost to show Bonamali how much technical mysticism was involved in manufacturing of bolts and nuts, was most troublesome at meetings.

Since there were no experienced persons in the service section, the factory manager was technical, administrative and accounting head of his factory at this stage. Bandhopadhya and Bonamali agreed that the managers should be trained in the various aspects of the working of the factory. But, how to release them even for a short period without disrupting production ?

In 1960 Bonamali hired four graduate engineers to work as understudies to the factory managers—one in small tools, one in hurricane lamps, and two in bolts and nuts. The factory managers helped in the selection but promptly relegated them to sections of the factories so that they could not possibly understudy the factory managers. As long as Bonamali was in charge, the situation was still under control. Most unfortunately Bonamali was fatally run over by a bus at this crucial stage.

The factories were expanding and Bandhopadhya had invested a further Rs. 10 lakhs in plant and machinery making a total investment of Rs. 25 lakhs.

The entire load of administration fell on Bandhopadhya. He could not spend enough time on production. Finance and sales occupied most of his time and nobody else, he said, knew how to buy textile goods, his first source of profit.

The factory managers retired into their separate kingdoms and became inaccessible. They stopped meeting the salesmen, took little notice of Bandhopadhya's instructions, and would not even bother to reply to his notes.

Meanwhile, competition in the country was becoming severe. The salesmen were accusing the factories of inflating costs and lowering the quality of products. The factory managers maintained that (a) they had too many non-technical jobs to do, (b) the salesmen being non-technical did not understand the intricacies of the product or the market, and (c) cost could not be reduced without more expensive machinery.

Dissatisfaction grew. To keep the peace, Mr. Bandhopadhya substantially increased the factory manager's salaries. The two engineers now got Rs. 2,000 each per month and Chatterji Rs. 1,500. To save the factory managers' time for production, and not to have to deal with the managers direct, he appointed his cousin Bonkim Bannerji as administrator of the factories. This was immediately interpreted by the managers as a curtailment of their powers and Bannerji was studiously ignored. The only work that eventually passed to him were routine labour matters.

Bandhopadhya was also worried about the accuracy of the financial accounts and the factory costs. The junior B. Com. book-keepers who looked after the accounts and stores in each factory were directly under the factory managers and could not carry out an investigation. Bandhopadhya therefore sent his senior book-keeper to the factories to audit the accounts and investigate costs. The factory managers proclaimed that the book-keeper wasted their time and made it impossible for him to do any auditing or investigation.

Bandhopadhya therefore appointed an experienced chartered accountant Mr. Guha on a salary of Rs. 1,000 with instructions to take over accounts from the factory managers. Within two weeks the accountant had been intimidated into being a stooge of the factory managers.

Under the pressure of sales competition and market criticism of the products, the factory managers began to submit to Bandhopadhya requests for machines involving a considerable investment. The factory managers wanted to set things right with little thought to the economics of working the machine. Chatterji was largely prompted by a desire not to be left out.

Mr. Bandhopadhya felt that he had neither the technical knowledge nor the personal contact with the managers to verify the validity of each request. So he merely locked the papers in his right-hand drawer and took no decision on their requests. He decided however that an additonal highly qualified engineer was required to act as a screen between him and his managers and also to keep his managers on check. A qualified engineer, Mr. Agarwal, was employed on a salary of Rs. 2,000 per month and was sent down to the factories to take over. There were immediate protests from the factory managers and threats of resignation. The managers claimed they had built the factories with their own hands and refused to take orders from a newcomer of their own age.

Mr. Bandhopadhya explained to them that the new engineer was merely a liaison between him and the factories and had no powers to issue instructions. Thereafter the new engineer, Agarwal, was all but relegated to the position of a maintenance engineer.

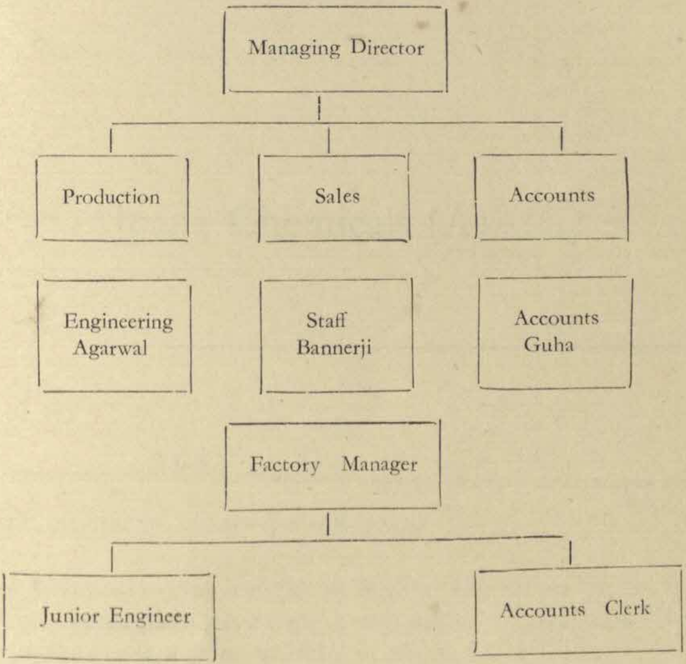
Meanwhile the sales personnel were getting restive. Sales were beginning to fall and Mr. Bandhopadhya decided to keep a close check on sales. The salesmen complained about poor quality and said that it was difficult to sell lamps that could not keep out the breeze. The best salesman resigned and joined the largest competitor.

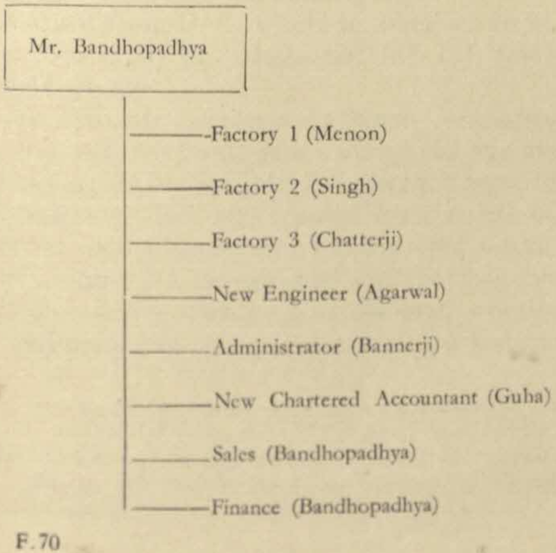
The other salesmen stated that they could not sell more unless they were more mobile. They could not "maintain face" with their customers because of their low salaries. Salaries were raised and cars or motor cycles as needed were provided.

Costs were now quite out of control. Net profit before tax had been reduced from 10% on turnover to about 2%.

While all this was going on, the workers in the three factories had formed a troublesome trade union. A charter of demands was now on Mr. Bandhopadhya's table which spelled bankruptcy or a strike.

Mr. Bandhopadhya had hoped to make the Company work on the following lines :





"Poor Bonamali," said Mr. Bandhopadhya. "Perhaps he was lucky to be killed in the bus accident. For myself, I am going twice per day to Thanthania Kalibari temple for guidance. Meanwhile I have come to you." Much in need of reassurance, he asked. "Is this not a very big mess?"

Alpana Chemicals (A)—(C)

ALPANA CHEMICALS (A)

BACKGROUND AND GROWTH

ALPANA CHEMICALS was bought in 1943 by the father of Mr. Lal when it was only small plant preparing house paints. Located in Hyderabad, it had at that time a sales volume of about Rs. 1 lakh.

Mr. Lal took over the management of the company in 1949, when he returned from U. K. where he obtained an M. Sc. in Chemistry from the University of Manchester. Mr. Lal, when he took over, was 24 years of age.

In 1950, Mr. Lal planned a trip to Europe to see some of the chemical manufacturing plants with a view to adding more lines to his businelss. At a party in London, Mr. Lal met the Chairman of Industrial Chemicas, a company which was reputed for a variety of its products and which already had a name in the international market. During the course of the evening Mr. Lal explored with the Chairman of Industrial Chemicals the possibility of working a collaborative business relationship in India.

Subsequently, Alpana Chemicals worked out a royalty arrangement

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with Industrial Chemicals, whereby on the payment of a certain royalty, the patents and technical know-how of Industrial Chemicals would be given to Alpana Chemicals. By this agreement, it also placed at the disposal of Alpana Chemicals, the fruits of the vast research programme of Industrial Chemicals, as well as the opportunity of training Alpana personnel in Industrial Chemical laboratories.

In 1953, Mr. Lal decided to shift the sales office from Hyderabad to Bombay, and Mr. Ram, the Sales Manager, was transferred to Bombay with the designation of Sales Director, and was asked to organise sales on an all India basis. Under Mr. Ram's aggressive sales policy, the sales of Alpana increased in volume. Mr. Ram was described as essentially a field man. He helped promote the image of quality and reliability. By 1963, he had established 10 regional sales offices in different parts of India, with a total sales force of 250 persons. The increase in sales volume from 1951 to 1960-61 is given in Exhibit I.

In the early years, Alpana Chemicals had only two main competitors, but recently competition had increased. There were at least six major competitors. But because of the image of quality and reliability, and because of the brand name of Industrial Chemicals which Alpana used, the consumers, both industrial and at the retail level, were in favour of Alpana products.

From household paints the business of Alpana increased to soaps and detergents, cosmetics, industrial chemicals, to manufacture of machine parts and machines, and finally to the establishment of a petro-chemical factory.

Each new enterprise grew as Alpana's requirements grew, first as small departments of Alpana providing materials and services, but finally into full fledged independent businesses in their own right.

The employment figures of Alpana from 1951-1960 were as follows:

EMPLOYMENT STATISTICS

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Managerial	5	8	10	19	19	19	21	21	21	25
Total	561	623	699	727	955	1365	1664	2023	2210	2625

FINANCIAL

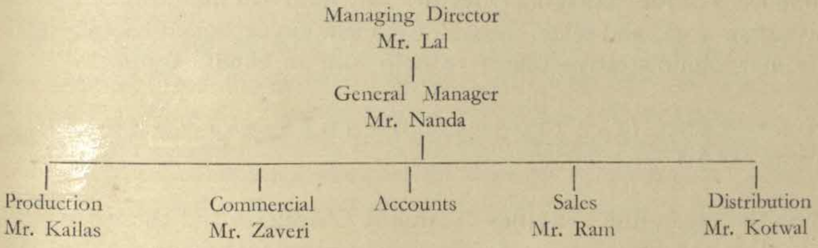
In order to give a further idea of the growth of Alpana Chemicals, some financial data in terms of the total fixed assets and working capital and the percentage of profits to fixed assets from 1951-1960 are given in Exhibit I.

ORGANISATION

In 1943, Alpana Chemicals consisted of a Works Manager, and a few chemists and workers.

In 1951-52, after the establishment of an industrial plant in collaboration with Industrial Chemicals, the organization of Alpana Chemicals was as follows :

THE ORGANISATION STRUCTURE OF ALPANA CHEMICALS 1951-52



Mr. Nanda, who was a trained chemical engineer, joined Alpana in 1949 as the General Manager. It was Mr. Nanda's opinion that the Commercial and Accounts department needed a more senior person, and he appointed Mr. Gupta in 1954 to take charge of Commercial and Accounts department. Mr. Gupta was by training an accountant. Previously, he had worked as an accountant in a textile mill in Bombay. Mr. Gupta was strongly recommended by a friend of Mr. Lal's for his initiative, hard work, and skill in dealing with crisis situations. Mr Gupta was 32 years of age when he joined Alpana Chemicals.

In 1955 Mr. Kailas, head of Production, left Alpana and Mr. Gupta was then given the responsibility of Production, besides his other responsibilities.

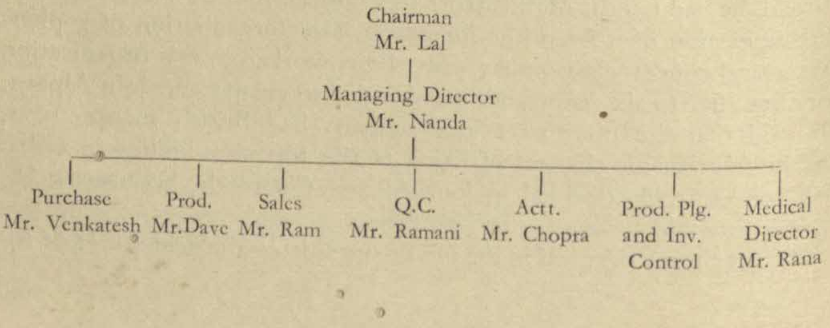
Mr. Ram, as mentioned earlier, was transferred from Hyderabad to Bombay to establish a Sales Office for sales and promotion of Alpana products all over India. Mr. Ram had a degree in Mathematics and Chemistry from the University of Birmingham. On his return from abroad, he had taught Mathematics in a college for two years. Then at the suggestion of a friend he joined the sales organisation of a pharmaceutical concern in Bombay. Mr. Ram worked in this organisation for about five to six years, and then decided to change and join Alpana. He said that the pharmaceutical company had British management, and he felt that his chances of rising to the top were limited in a British concern. He decided to join Alpana Chemicals, because he believed he would have a better future here.

Mr. Ram threw himself in the job of organising the field work of Alpana, and in a few years had 10 regional offices, each office headed by a regional manager. Mr. Ram was essentially a field man and left the administrative aspect of the job to an office assistant. From 1952 to 1962, Mr. Ram built the sales of Alpana 19 times its original figure. He established a sales force of 120 young men. An initial period of training of six months and refresher courses were frequently held for the sales representatives. Mr. Ram worked 10 to 12 hours a day, and travelled all over India visiting, helping and assisting his regional managers. Mr. Ram was well liked by his colleagues and juniors and enjoyed the confidence of the Managing Director. Mr. Ram had no liking for administrative work, and when the sales organisation expanded he appointed a senior administrative officer to help him in administration.

SOME ORGANISATIONAL CHANGES BETWEEN 1953 AND 1963

With the expanding activities of Alpana Chemicals and the growth of subsidiary companies, there were many organisational changes. In 1955, Mr. Lal became the Chairman of Alpana, and Mr. Nanda, the Executive Director. In 1958, Mr. Raghuvir, head of Quality Control, became the General Manager of another chemical company, a subsidiary of Alpana, and his second in line, Mr. Dave, became the head of Quality Control department. In 1960, Mr. Gupta, head of Production and Commercial activities, was transferred by Mr. Lal to the head office where he could help Mr. Lal with problems of licences, government relationships, obtaining raw materials, and negotiations with foreign collaborators. After Mr. Gupta went to the head office, Purchase and Production were differentiated, and Mr. Gupta's assistant in Purchase, Mr. Venkatesh, was promoted as head of Purchase; Mr. Dave was transferred from Quality Control to head the Production Department. Mr. Ramani, another young qualified chemical engineer who had been with the Quality Control department for the last seven years, became the head of Quality Control.

The organisation structure in 1962 was as follows:



The head of Production, Sales, and the medical person were designated as Directors and carried a higher status in the organisation. The other heads of the departments were designated as Managers. The Management considered Purchase a very important function, since it involved delicate negotiations not only with government, but with foreign companies where purchase could be made with rupee payments. Since many of these discussions and negotiations involved technical know-how, Mr. Venkatesh had to ask the assistance of Mr. Dave, Production Director. Management felt that if Mr. Venkatesh could acquire sufficient technical knowledge to handle purchase on his own, this job would also be upgraded to the status of a Director.

Mr. Nanda said, because of the rapid expansion of Alpana Chemicals and the development of subsidiaries, many of their executives had gone from Alpana to become chief executives of the subsidiary companies. Mr. Nanda felt that this had created organisational problems for Alpana. At this stage many of the younger executives had neither sufficient length nor variety of experience for taking on a more senior job.

APPOINTMENT OF A NEW CHIEF EXECUTIVE

In September 1962, Mr. Nanda, who had been working as the Managing Director since 1955, had a heart attack, and his doctors advised him to retire and not to lead a strenuous life. Mr. Lal, who had depended on Mr. Nanda a great deal, asked him to continue as a member of group management at headquarters. The problem was to find a suitable replacement for Mr. Nanda. Both Mr. Lal and Mr. Nanda believed that the best procedure would be to promote someone from within the organisation.

Mr. Lal and Mr. Nanda both considered Mr. Ram, Director of Sales, the most suitable person for the job of the Managing Director. Mr. Ram had been with the company ever since it started, knew the market and its demands, was familiar with various aspects of the business, and had the respect and confidence of management and his colleagues. At the time Mr. Nanda retired, Mr. Ram was 52 years of age.

In October 1962, Mr. Lal invited Mr. Ram from Bombay to Hyderabad to discuss with Mr. Nanda and himself the future of Alpana Chemicals. In this meeting, Mr. Lal said to Mr. Ram that both Mr. Nanda and he believed that Mr. Ram should take the position of the Managing Director. Mr. Lal said that he had great confidence in him and was sure that he would make a success of this job as he had in Sales. Mr. Ram said he would like to think over the offer for a few days. Subsequently, he said to Mr. Lal that he wasn't sure that he would be able to live up to Mr. Lal's expectations. He said :

I am essentially a field man, and am not sure whether anyone is quite ready to take over from me the total responsibility of the Sales organisation. I have two or three good persons in the sales organisation, but they need two to three years before they would be ready. We deal with a sales volume of Rupees one crore, and competition is getting tougher and our sales targets getting higher. Perhaps Dr. Basu (Sales Manager, Bombay Division) could handle it, but I am not sure.

MR. LAL : Perhaps in the interim period you could look after Sales and also take over the job of the Managing Director. As your confidence grows in Dr. Basu, you could slowly withdraw from Sales.

MR. RAM : As it is I don't keep well. I have high blood pressure and the responsibility of Sales and of the total organisation may be too much for me. I am not sure whether I can fulfil your expectations. Perhaps if somebody was ready to take over Sales, I would feel easier in my mind, but looking after Sales, developing a successor, and taking over the job of the chief executive at Hyderabad would be too much. I have neglected my family all these years and I feel I should give more time to my wife and son.

Mr. Nanda mentioned subsequently to Mr. Lal that Mr. Ram had been taking some medicine for his high blood pressure during the last few months, and that this medicine had some side effects of depression. Mr. Nanda thought Mr. Ram needed a change but could not find time to take a holiday.

Although both Mr. Lal and Mr. Nanda were convinced that Mr Ram was the most suitable person, they were somewhat concerned with Mr. Ram's hesitancy, and the situation in the Sales organisation, if Mr. Ram moved to Hyderabad as the Managing Director, since there was no one in the sales organisation who could take Mr. Ram's place.

ALPANA CHEMICALS (B)

Mr. Lal thought over the situation and after further discussions with Mr. Nanda suggested the following course of action.

Mr. Ram (52 years) should become the Managing Director of the company, and Mr. Dave (36 years), Director of Production, should become the Deputy Managing Director.

Mr. Lal believed that by creating a new post of Deputy Managing Director they could relieve Mr. Ram some of the burdens of the Managing Director's job. Also, Mr. Ram, whose great skills were in field work, could still travel around the country and the work at headquarters could be handled by Mr. Dave during his absence. It would also provide Mr. Ram the time to supervise and train Dr. Basu (Sales

Manager, Bombay Division) to take over the job of the Sales Director. The combination of two persons with special skills in Sales and Production at the top management level would in the opinion of Mr. Lal strengthen the organisation.

Mr. Lal also believed that in case Mr. Ram's health did fail in future, Mr. Dave would have had an excellent opportunity of working with Mr. Ram, and that this would be good training for him for becoming a Managing Director at a future date when Mr. Ram retired. Mr. Lal discussed his proposal with Mr. Nanda, and they decided that on this basis they should discuss the matter further with Mr. Ram and Mr. Dave. A month after the earlier meeting, Mr. Lal called Mr. Ram for another discussion. In the meeting were Mr. Lal, Mr. Ram, and the case-writer. The meeting went as follows :

MR. LAL : We have met to consider the question of the Chief Executive of Alpana Chemicals. I would like to have a frank discussion on the subject. On my part, I would attempt to be frank and not say things to protect your feelings. Well, our present top management structure can be described at three levels: the first level is that of the shareholders, the second level is that of group management, and the third level is management at the enterprise level. The functions of "group management" are to consider the problems of growth of various Alpana concerns. The group management considers the financial needs of the companies, forward planning for the group as a whole, new collaborations, new ventures and new companies. Finally, it is the group management's responsibility to select and appoint the Chief Executive of the various Alpana enterprises. The Chief Executive has the overall responsibility at the enterprise level. This consists of the coordination of the major line functions, viz., purchase, production, and sales. He will be assisted by service functions attached to his line, viz., quality control, accounts, and technical development. In the past, Mr. Nanda was doing an excellent job; but after his illness he can no longer function as the Chief Executive, and I must, therefore, find a new Chief Executive* for Alpana Chemicals. In choosing a Chief Executive I must find someone in whom I have confidence and who enjoys the confidence of the enterprise and of the family members who are the shareholders.

In our opinion you are the ideal person for the Chief Executive and that is why we are talking to you.

MR. RAM : I am grateful to you for your confidence, etc., but my talent has been in sales and my contribution to the company has been in that area. Now my health is poor. Also, I am afraid that if I become the Chief Executive, you will not be too happy if the results were not too good. The reason for this is my poor health. I do not travel enough to my divisions to pressure them for higher sales. My dilemma is that if there is another Chief Executive I do not know how well I will be able to get his understanding. In the past, you have generally supported me.

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*Overall responsibility for the entire operations of Alpana Chemicals at the enterprise level. This will consist of coordination of the major line functions, viz., purchase, production and sales. He will be assisted by service functions attached to his line, viz., quality control, accounts and technical development.

There are two reasons for my hesitating to accept the role of the Chief Executive. First, I feel inadequate for the job; and second, my health is not good, so that I cannot put in the same amount of energy as I did in the past.

MR. LAL : What would give you the best job satisfaction ? Because it seems to me that the way this company could gain the most from you would be to utilise your capabilities in a way that would provide you the greatest job satisfaction.

MR. RAM : I think I would have greater satisfaction if I remain in the sales job where I know the ropes well. In many matters of policy and procedure I can tell what the answer should be almost intuitively. I have confidence in my knowedge, and know what is right or wrong in terms of decision making in sales.

MR. LAL : Let me see if I have understood what you have said. You are saying that it is not an easy decision for you, and. . . . .

MR. RAM : I have always had satisfaction in sales, and as a matter of fact, I sometimes feel I should take a job with somewhat lower responsibility, because the pressure in this job is sometimes too great for me. But I owe something to you. When Mr. Knapp resigned and when you put me in charge of all India sales, I could not sleep for seven days. Dr. Basu, the Manager in charge of promotional activities who was working under Mr. Knapp, had done nothing in terms of preparation of promotional material. I had to do all that with Dr. Basu and we were two months behind schedule. I think finally we were able to do a good job. . . . . .

I have confidence in your judgment. If you say that it would be for the good of the company for me to be the Chief Executive, I would go along with your decision. If you want me to try, I will try, for I do not want to seem obstinate. But in my heart, and for my own peace of mind, I feel I should not leave sales. I have no particular desire for a higher designation or a higher status. I would not mind working under some one who has worked under me, and I do not have any particular ambition about earning more money. I owe my career to you and will therefore not insist on my sales job.

MR. LAL : Let me clarify what you have said. You are saying that you have confidence in my judgement and a sense of loyalty to me and that if I express myself persistently about your taking on the Chief Executive's role, you will do so. However, if I appoint someone else, you will not feel let down about it. But I am not going to make the decision for you; you will have to decide it yourself.

MR. RAM : You have put it in a much better form than I could have.

At this stage Mr. Lal looked at Mr. Nanda and asked if he had anything to say about the discussion.

MR. NANDA : My understanding is based on my reading of Mr. Ram as a person, and what he has indicated to me earlier. I hope, Mr. Ram, you will not feel hurt about what I am going to say. My impression is that you are saying what you are because you feel that the management considers you are no longer good in sales and wants to pull you out of the sales job.

MR. RAM : I know I could do a good job in sales and that you have no other person better than myself . . . .

My wife asks me what the point is in earning more money if I have to live with this kind of pressure. She says, "I would prefer you to live longer instead of your earning more money." Then at other times, she says, regardless of what job I have, I will always work too hard. At one stage I was offered a job of a Professor in a University. My wife said if I have to work as hard as I do, why not then enjoy the benefits of money as well . . . . .

I have a feeling that you estimate me far higher than my capacity.

MR. LAL : If you were a woman, I would say, you are fishing for compliments.

MR. RAM : Our sales performance last year has not been too good, partly because I did not travel around to the various divisions for a personal visit.

MR. NANDA : Are you suggesting that if the sales of the past year had been good your decision would have been different ?

MR. RAM : No, my health is not too good and I don't have the same energy.

MR. LAL : I feel that on occasions when you are under pressure, your anxiety is compounded by the thought of what will happen to Alpana Chemicals, and your feeling that you are letting me down personally.

MR. RAM : Yes, I have this anxiety. I have also felt at times that you have not given sufficient attention to my problems. We must do something about the organisations of the sales division to train a a successor.

MR. LAL : How do you see this problem of sales organisation ? Would you suggest a Joint Sales Director, or a Sales Manager, who coordinates the work of the 10 divisional managers ?

Mr. Ram : I do not believe that a Joint Sales Dirctor will work and would like to suggest a Sales Manager.

Mr. Lal : Going back to an earlier point, what were your reasons for your inability to travel ?

Mr. Ram : I was partly busy, but it was largely my own fault. I should have travelled more, but I thought it was not necessary. I thought the divisional managers would be able to do it on their own without my having to go to their divisions. Out of the three divisional managers we promoted last year one has turned out good and the other two not so good. I feel if I spent more time with them they would have performed better. Somehow I feel I could have guided them better.

Mr. Lal : Yes, I see that. My proposal was to designate Dave as the Deputy Chief Executive so that you will have a young, dynamic person, who will take the load off you, and give you more opportunity for devoting time to sales. Sales is very important in a chemical business. Tell me what gives you more satisfaction—to remain in sales or to become the Chief Executive ? In the first alternative, Mr. Dave would become the Chief Executive, because I have no intention of bringing anyone from outside.

Mr. Ram : I do not mind working under Mr. Dave.

Mr. Lal : What is you choice in relation to these two alternatives ?

Mr. Ram : I believe I would prefer the first alternative, where I can remain in sales.

Mr. Nanda : I cannot put myself in your position. You have specialised in sales. I have had no specialisaton, and was always in general management and welcomed opportunities of getting ahead. My own opinion is that you are throwing away an opportunity.

Mr. Ram : I believe in taking one thing and doing it well.

Mr. Lal : As I had mentioned to you earlier, the appointment of the Chief Executive has to be approved by group management, and I will have to go to them to get their acceptance for Dave. I will try and get their approval, and do what will give you more satisfaction.

Alpana Chemicals (C)

The following day Mr. Lal had invited Mr. Dave for a discussion. In the meantime Mr. Ram had a talk with Mr. Nanda and had expressed some hesitation and vacillation over his earlier decision. Mr. Nanda told Mr. Ram, "If you like I could communicate to Mr. Lal that you would like to reconsider your decision."

Mr. Ram replied, "No, don't say anything for the time being because he might feel that I cannot make up my mind."

Before the meeting with Mr.Lal, there was some discussion between Mr. Dave, Mr. Ram and Mr. Nanda. Mr. Dave, who knew the purpose of the meeting in the afternoon with Mr. Lal, said to Mr. Ram that he should accept the position of the Chief Executive, that he (Mr. Dave) would help him in every way that he could, and that his would be the best thing for the organisation, etc.

In the afternoon, since an earlier discussion between Mr. Ram and Mr. Dave had already taken place, Mr. Lal called a second meeting in which Mr. Ram, Mr. Dave, Mr. Nanda and the case-writer were present.

MR. LAL : I hear, there has been some discussion already on the subject of the Chief Executive between all of you.

MR. DAVE : Sir, I agree that the organisation at this stage needs a Chief Executive. Among the existing persons it would seem that Mr. Ram should become the Chief Executive. I will give all possible help that he requires. (Turning to Mr. Ram) You can spend 75% of your time in sales, and I will see that you will have no problem from the factory side.

MR. LAL : I think the skills of both of you are complementary in nature and that the two of you will make a very strong team.

MR. RAM : If Dave becomes my deputy who will take over Mr. Dave's job ?

MR. LAL : We will discuss this subsequently after we finalise who should be top management.

MR. RAM : I have talked to Mr. Nanda, and he feels that I am throwing away an opportunity. If this is the best thing for the organisation, I will accept the job of the Chief Executive.

Mr. Lal asked Mr. Nanda to issue a memo indicating the organisational changes effective from the first of next month.

EXHIBIT I

ALPANA CHEMICALS

			Years						
	1951	1952	1953	1954	1955 -56*	1956 -57	1957-58	1958-59	1959-60
1. Total Net Sales (in millions)	2.01	4.07	7.49	10.01	17.26	18.56	25.42	28.56	33.97
2. Fixed Assets (in millions)	2.24	2.47	2.83	3.10	3.46	3.85	5.98	9.10	10.56
3. Working Capital (in millions)	3.84	4.51	4.88	6.03	8.37	7.73	10.02	12.16	12.84
4. Percentage of Profits to Fixed Assets	-36.0	-30.0	14.0	22.0	49.0	68.0	65.0	53.0	29.0
5. Percentage of Profits to Fixed Assets and Working Capital	-13.0	-11.0	5.0	7.0	14.0	23.0	24.0	23.0	13.0

*for 15 months

Atlas Corporation

THE ATLAS CORPORATION was started in the year 1918 by the Jain family with one Engineering unit at Calcutta. Today it has three Engineering units of Calcutta, one Engineering unit at Hyderabad, one Electronic unit at Bombay, three Sugar units near Kochapur, and two Textile Mills at Ahmedabad. The three Engineering units produce various components for Railways, such as axle boxes, etc. The Electronic unit manufactures tape recorders, car radios, television sets, etc.

Total sales of Atlas Corporation last year were 40 crores. It employs about 35,000 people. To facilitate the management of the dispersed and diversified units, they had been grouped and each group was managed by a member of the Jain family. Mr. B. K. Jain, the oldest in the family, was chairman of the corporation. He also directly supervised the running of the engineering units in Calcutta.

This case presents brief reports of meetings held by senior executives of Atlas Corporation. Information regarding the individual executives is given in the annexure.

This case, Atlas Corporation, was prepared by Professor Tarun Sheth as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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MEETING—25-12-67 (X-MAS)

B. K. JAIN : Ratan, I am glad that the unit managed by you is doing better. I think you are young and you should be working still harder.

R. K. JAIN : I was waiting for this opportunity. For quite some time I have been feeling that, I don't have enough work. I worked quite hard in the initial stages but after I have straightened out everything, I have nothing much to do.

B. K. JAIN : People who want to come up in life must always work very hard. I used to work very hard when I was your age.

R. K. JAIN : Why don't you give me more responsibility ?

B. K. JAIN : Do you think, I have not given you enough ?

R. K. JAIN : Whatever job you have given me, I have done it well—rather too well. I must get more opportunities to show my worth.

B. K. JAIN : Where is the hurry—Why can't you bring further improvements ? Certainly there is further scope.

R. K. JAIN : I feel I am capable of much more and you will agree with me that I have proved my capabilities.

B. K. JAIN : What more do you want ?

R. K. JAIN : I want greater involvement in all the Engineering units, including Marketing. I don't think, I would like to become only a Unit Manager.

B. K. JAIN : (after pause) Let me think about it.

MEETING—1-1-68

Attended by—Mr. B. K. Jain
Mr. Ratan Kumar Jain
Mr. B. K. Agarwal
Mr. T. K. Sethi
Mr. Talwar
Mr. Ranganathan
Mr. Pinto

It was a very brief meeting. Mr. B. K. Jain announced that Ratan would be responsible for looking after the Engineering units progressively. He further said that he hoped whatever help, assistance and guidance his sons needed, it would be provided by all managers.

There was no further discussion except that Mr. Agarwal said, "I will see that Ratan gets to know the inside of the business soon."

Mr. Sethi said, "Ratan is a young intelligent person and whatever help he needs from me, I will most willingly give."

Others only nodded in the affirmative.

Mr. R. K. Jain said that he was looking forward to working with them and he had no doubt that with their cooperation, the performance of all Engineering units will improve further.

Almost all nodded.

MEETING—1-3-68

Attended by—Mr. R. K. Jain Mr. Talwar
Mr. B. K. Agarwal Mr. Ranganathan
Mr. T. K. Sethi Mr. Pinto

Mr. R. K. Jain described his experiences of the Unit he had operated. He described at length various management systems and quantitative techniques; and said he had gained many advantages by application of those techniques. He wanted that these systems should be gradually applied to the whole Corporation. He further said that he had already finalised the negotiations for a computer which will be available to them within six months.

He said that he would like to bring in greater uniformity and a systematic approach to personnel policies. He felt that various units were adopting different practices which created conflicts and grievances.

Mr. Agarwal commented that he had introduced some excellent systems in the marketing operations quite some years back and that they were working very well. He mentioned punched-card system and telex are examples.

Mr. Sethi said that he would gladly examine any new method that was proposed. Regarding the remarks on personnel policy, he said that anything he did was with the approval of the chairman and as such he was not aware of any serious deviation from policy within the corporation.

MEETING—17-5-68

Attended by—Mr. R. K. Jain
Mr. T. K. Sethi

Mr. R. K. Jain mentioned to Mr. Sethi that some of the systems people complained to him that they were not getting cooperation from the officers of his unit. Mr. Sethi told him that he did not know why the officers had to go to him and complain to him. This way there would be indiscipline in the organization and that he should instruct his officers that whenever they had any complaints they should approach him. Mr. R. K. Jain requested him that he should extend his full cooperation to them. Mr. Sethi mentioned to him that let them approach him. Mr. R. K. Jain told him that he would tell them. On the next day Mr. R. K. Jain called his Industrial Engineer, Cost Accountant, and Quality Control Officer and told them that he had talked to Mr. Sethi and that they should go and explain to him what facilities they wanted from the officers of his unit. After four days, these officers reported to Mr. R. K. Jain that Mr. Sethi actually insulted them and said that by reading a few books they could not run the organization. Next day Mr. R. K. Jain met Mr. Sethi and asked him whether the officers met him. He told him, "Yes, they are young intelligent boys but would need lot of experience." Mr. R. K. Jain told him that they had done a good job in another unit and given an opportunity in this unit they will be able to do a very good job. Mr. Sethi told Mr. R. K. Jain that he would be taking interest in them.

MEETING—5-7-68

Attended by—Mr. R. K. Jain
Mr. B. K. Agarwal

Mr. R. K. Jain met Mr. Agarwal in his office and told him that he would like to explain his plans in detail. He mentioned to him that computer was expected very soon and he would like to make a beginning from the Marketing Department because he considered that there was a great scope. Mr. Agarwal told him that he had never resisted anything modern provided that was really worthwhile. He further told him that he was the first person to introduce punch card system and Telex in this organisation even though the management was so traditional. He said, "I do not think that at this juncture computer should be introduced because it is a very expensive equipment." Mr. R. K. Jain mentioned to him that in all foreign countries computer has been found very helpful and effective in management decisions. Mr. Agarwal mentioned to him that he visited foreign countries almost every six months and knew a great deal about what was happening in foreign countries and he did not think that in this country the time was ripe for the computer. Mr. R. K. Jain mentioned to him that he had already informed him that he had negotiated about the computer and that computer would be installed very soon and therefore he would be keen to use it in Marketing. Mr. Agarwal told him that he would discuss the issue with the chairman frankly and explain to him the whole situation and even then if the chairman wished that, he would not only agree to the introduction of computer but would also extend his full fledged support. Next day Mr. Agarwal mentioned to Mr. R. K. Jain that he had discussed with the chairman and that he was asked by him to give you encouragement. He would, therefore, extend his full support. Mr. R. K. Jain thanked him. Mr. Agarwal further mentioned to him that whatever is done on the computer, so far as Marketing was concerned, should be reported to him first. Mr. R. K. Jain agreed.

MEETING—20-4-69

Attended by—Mr. R. K. Jain
Mr. Talwar
Mr. Ranganathan
Mr. Pinto

Mr. R. K. Jain started by saying that in this meeting the changes introduced during the period from 1-3-68 till this date, will be reviewed.

Mr. R. K. Jain mentioned that in the Units managed by Mr. Talwar, Mr. Ranganathan and Mr. Pinto some progress had been made which was agreed to by these managers. But in the case of Marketing Unit and the Unit managed by Mr. Sethi there were several delays and non-cooperation on the part of many officers. Mr. Talwar mentioned that it was not non-cooperation from the officers but from Mr. Agarwal and Mr. Sethi who considered themselves as our bosses reporting to higher authorities. Mr. Talwar further said, "They can afford to say no to you and also have a direct access to the chairman of the company even for minor things. There is a complaint from our officers that even if the Quality Control officer or the Data Processing officer are rude to them, they could not afford to say anything to them because in that case the matter will be referred to you which will spoil their record. This weakens our position even though we cooperate." Mr. Ranganathan said, "Sir, whatever cooperation you want from us we will give you, but Mr. Agarwal and Mr. Sethi should also be cooperative in the same manner as we are." Mr. Pinto said that he agreed with what Mr. Talwar had said.

Mr. Talwar said, "Only the people who do not cooperate get the maximum attention from the chairman as well as you. For example, the chairman never bothers to meet us. Does the management think that Mr. Agarwal and Mr. Sethi are big managers and we are small managers ? They can afford to say no and reject any of your ideas whereas we see that we cooperate with you." Mr. R. K. Jain said that he was thankful to them for their cooperation but their observations were not correct. "The chairman has a high opinion of all of you and I also have very high opinion about you."

MEETING—25-4-1969

Attended by—Mr. B. K. Jain—Chairman
Mr. R. K. Jain

Mr. R. K. Jain said : "I would like to inform you about my progress. We have been able to do good work in the units managed by Messrs Talwar, Ranganathan and Pinto, but I must frankly confess that I have miserably failed in the Marketing units as well as in the unit managed by Mr. Sethi. They are very non-cooperative so much so that even the other managers have observed this. Frankly, I do not think that Mr. Agarwal and Mr. Sethi have accepted me. I feel, I have spoiled my image because of them." Mr. B. K. Jain counselled him that he is very young and both Mr. Agarwal and Mr. Sethi have been old and loyal to this company and they always considered him (Mr. R. K. Jain) as their son. He should deal with them with respect and should not do things which unnecessarily hurt them. He further told him that both Mr. Agarwal and Mr. Sethi had mentioned to him that they would see that you grow well and he would not doubt their intentions. Mr. R. K. Jain told him: "I am supposed to be overall incharge of Engineering units and therefore I cannot differentiate between Mr. Agarwal, Mr. Sethi, and others and that they should also show some respect to me." The chairman counselled him: "You cannot treat all people alike. You have to recognise differences and that is the art of management. If you will cooperate with them, I have no doubt that they would cooperate with you fully." He further told him that his experience with both Mr. Agarwal and Mr. Sethi has been one of greatest cooperation.

ANNEXURE

Mr. Sethi

Mr. Sethi—Manager of the largest and oldest Manufacturing plant. Mr. Sethi is about 55 years old with about 35 years service with the Corporation. He joined the company as junior engineer and made a very rapid progress in his career. He had reputation for organising ability, capable of meeting difficult targets, a man of wide interests such as, art, literature, sports, etc. He was known for his charm in personal relations as well as ruthlessness in situations where people did not agree with him. He was credited with a prodigious memory as, for example, his knowledge of almost all 10,000 workers by name working in his unit.

He was considered very influential with the chairman of the company.

Mr. B. K. Agarwal

He was the Marketing Manager of the whole Engineering Division. He was sixty years old and had a Master's degree from Oxford in literature. He had joined Atlas Corporation about 25 years ago with the specific assignment of organising the marketing operations of the Division on modern lines. Prior to joining Atlas, he had worked as Marketing Executive of a leading foreign firm.

He was considered to be an extrovert; very fond of talking about himself and his work. In contrast to the general pattern within the company, he believed in dressing in a correct business suit, maintaining an uptodate well-furnished office (perhaps the best furnished office in the company). He was member of the most exclusive clubs and had acquaintances with social circles dominated by foreigners. He is reported to have said that he cannot deal with "Dhotiwalas." He depended upon Sales executives of traditional Indian background for the domestic marketing and reserved for himself export business which enabled him to travel abroad about 4 months in a year. Within the company he was compared with an old-time Army Officer who believed that he knows all the answers and the rest of the people have only to carry out the instructions. The experience of the subordinates had always been one of listening to criticism conveyed with lot of anger and irritation. Many of his subordinates felt compensated for his treatment by the salary increase and promotions that he conferred on them.

Mr. Talwar

Mr. Talwar is a Manager of most profitable and modern production unit of the Corporation. He is 53 years old and has been with the company for about 35 years. He has been a Unit Manager for about 12 years. The unit that he is managing is the only unit which is away from the Head Office location. Being away from H.O. most people know him by his reputation for highest profitability, excellent maintenance of the plant which even after 10 years of operation was considered as a show piece. It was said that he had excellent command over labour characterised by cordial relationship with different unions. His managerial and supervisory group had a great sense of loyalty to him but felt that he was a very severe task-master. He had taken part in freedom movement and courted imprisonment in 1942. His relationship with the chairman could perhaps be best described as appreciation for very efficient management but not very close in personal relationship.

Mr. Ranganathan

He is 38 years old and joined the company 4 years back. He has had his higher technical education from U. K. Prior to joining Atlas Corporation, he was working as Marketing Executive of one of the leading companies. He had a reputation of successfully applying some of the quantitative methods of management control but had not attached much importance to labour relations and personal relations with Managerial and supervisory staff. His subordinates described him an "expert on every thing."

Mr. Pinto

He was 39 years old and joined the Atlas Corporation 6 years ago. He was the Manager of the smallest but specialised production unit. He was a graduate from Harvard specialising in Finance. He was reserved in behaviour and interacted very little with his other colleagues. He was able to achieve fairly satisfactory results through closely directing his departmental heads.

Mr. R. K. Jain

He is 28 years old. He is the son of the chairman. After obtaining his Graduate degree in Engineering from M.I.T., he was assigned by his father to manage the smallest production unit after a brief period of 6 months training.

The chairman had almost written off this unit but at the request of Mr. R. K. Jain he gave him full authority to manage the unit in whatever manner he liked. Mr. R. K. Jain collected a few specialists from within the company as well as recruited from outside. With their assistance, he gradually introduced various quantitative techniques such as Budgetary Control, Quality Control, Production Control, Inventory Control, etc.

Within a period of one year, this unit started earning profits.

After this juncture, he insisted with his father that the scope of his responsibility should be enlarged.

Mr. B.K. Jain

He is a graduate. He is 53 years old. He had worked in the company under the supervision of his father before becoming a chairman about 15 years ago.

Because of his long years of working with the Corporation, he had close contacts and cordial relations with various managers.

He is held in high esteem both in Government and Trade circles.

He is President of various trade and business associations. He travels a lot both within the country and outside the country. He visits different units of the company about once a year. He meets more frequently Mr. B. K. Agarwal and Mr. Sethi. Others, he meets once a month in the Managers' meeting and sometimes on social gatherings.

He gives his opinions very rarely and doesn't give an impression of dominating type. The general impression within the company was that Mr. B. K. Jain took greater interest in activities outside the company and that the managers were being given a wide scope in managing their units.

PART EIGHT

Understanding Change

HAGEN

How Economic Growth Begins : A Theory of Social Change

CHOWDHRY

Organizational Change as a Generational Problem

DALTON, BARNES AND ZALEZNIK

Approaches to Organizational Change

ROGERS

The Characteristics of a Helping Relationship

READINGS

EVERETT E. HAGEN

How Economic Growth Begins : A Theory of Social change

THIS PAPER proposes a theory of how a "traditional" society becomes one in which continuing technical progress (hence continuing rise in per capita production and income) is occurring. I shall define a traditional state of society in the following section. The hypotheses which I present to explain the change from this state to one of continuing technological progress may be relevant also to the analysis of other types of social change.

The theory does not suggest some one key factor as causing social change independently of other forces. Rather, it presents a general model of society, and deals with interrelationships among elements of the physical environment, social structure, personality,—and culture. This does not imply a thesis that almost anything may cause something, so that one must remain eclectic and confused. Rather, certain factors seem of especial importance in initiating change, but their influence can be understood only by tracing inter-relationships through the society. It is implied that general system analysis is a fruitful path to advance in societal theory. Since presented in brief compass, the model is necessarily presented rather starkly here.[1]

The purely economic theories of barriers which explain the absence of growth seem inadequate. The assumption that the income of en-

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[1] The model is presented at greater length in E.E. Hagen, *On the Theory of Social Change* (Homewood, Illinois : Dorsey Press, 1962). This paper is in essence an abstract of various chapters of that book.

tire populations is too low to make saving easy; that markets in low-income countries are too small to induce investment; that costly lumps of expenditure for transport facilities, power plants, etc., which low-income countries cannot provide, are requisite to growth—these and related theories are internally consistent but seem without great relevance to reality. Empirical study of low-income societies demonstrates that the supposed conditions and requirements do not in fact exist or are not of great importance.

Neither are the differences among nations with respect to growth explained by differences in the degree of contact with the West. Contact with the technical knowledge of the West is a requisite for growth, but forces quite independent of the degree of contact determine whether a nation uses that knowledge. The most spectacular example of this fact is that among the four great Asian nations, Indonesia and India had the most contact with the West during the period 1600-1900, China had an intermediate amount, and Japan the least. Moreover, Indonesia and India experienced the most Western investment, China an intermediate amount, and Japan none whatever until her economic growth was already well under way. Yet among the four countries, Japan began to develop first, and has developed rapidly; Indonesia is the laggard; and if China solves her agricultural problem, her growth will probably be faster than that of India.

These facts suggest some hypotheses which a theory of growth should not emphasize. Certain other facts give more positive indications of the elements with which a plausible theory must deal.

Economic growth has everywhere occurred interwoven with political and social change. Lipset and Coleman have demonstrated the correlation between economic change and the transition from authoritarian to "competitive" politics in Asia, Africa, and Latin America, and the same relationship is found in every country elsewhere that has entered upon economic growth.[2] The timing is such that it is clear that the economic growth does not occur first and cause the political-social change. Rather, the two are mutually dependent. Whatever the forces for change may be, they impinge on every aspect of human behavior. A theory of the transition of economic growth which does not simultaneously explain political change, or explains it merely as a consequence of the economic change, is thus suspect.

One last consideration will serve to lead up to the exposition of the model. It is this : the concept is rather widely held in the West that the present low-income societies can advance technically simply by imitating the technical methods already developed in the West. That concept is ethnocentric and incorrect. Mere imitation is impossible. A productive enterprise or process in the West depends for its efficiency on its position in a technical complex of facilities for supplies, services, transportation and communication, and on a complex of economic, legal, and other social institutions. The management methods which work well within the plant and in its relationships to other units, depend on a complex of attitudes toward interpersonal relationships which are not closely paralleled by attitudes elsewhere. When the process is lifted out of its complex, to adapt it so that it will function in an underdeveloped economy requires technical and especially social and cultural creativity of a high order.

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[2] S. Lipset, "Some Social Requisites of Democracy : Economic Development and Political Legitimacy," *American Political Science Review*, Vol. 53 (March 1959); G. A. Almond, J. S. Coleman et al., *The Politics of the Developing Areas* (Princeton : University Press, 1960). Adapting their method slightly, I used it in "A Framework for Analyzing Economic and Political Change," in R. Asher and others, *Development of the Emerging Comtries : An Agenda for Research* (Washington, D. C. : Brookings Institution, 1962).

Requirements for the transition to economic growth, then, are (a) fairly widespread creativity—problem-solving ability, and a tendency to use it—and (b) attitudes toward manual-technical labor and the physical world such that the creative energies are channelled into innovation in the technology of production rather than in the technology of art, philosophy, politics, or other fields. I believe that exploration of these facets of the process of economic growth is a useful approach to a theory of social change.

What is in point is not widespread genius but a high degree of creativity in a few individuals and a moderately high level in a larger number. I shall suggest reasons to believe that the traditional state of a society is associated with a rather low level of creativity among the members of the society. Further, the persons in traditional society who are in a position to innovate are the elite—perhaps the lower elite, but certainly not the peasants and urban menials. It is well known that being concerned with tools, machinery, and in general physical processes seems demeaning to the elite and is repugnant to them. It seems to me that a theory of economic growth must give considerable attention to the forces which change those two aspects of personality.

I. THE STABILITY OF TRADITIONAL SOCIETY

When I refer to a traditional society I have in mind a traditional agricultural society, for while there have also been traditional hunting and fishing societies and traditional pastoral societies,[3] they can hardly accumulate many artifacts and hence continuing technical progress is hardly possible in them. A traditional agricultural society is of course one in which things are done in traditional ways, but two other characteristics which have been typical of the world's traditional societies and turn out to be essential qualities of the type are also worthy of note here.

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[3] Industrial societies will probably also become traditional in time, which is to say that technical progress will come to an end, at least for a time.

First, the social structure is hierarchical and authoritarian in all of its aspects—economic, political, religious. The existence of an authoritarian hierarchy does not refer merely to a large mass who were submissive and to a small class who rule. Rather, every individual in a traditional hierarchy except perhaps for one or a few at the very apex is submissive to authoritarian decisions above him, and in turn exercises authority on persons below him. And this is true even of the lowliest peasant, who, as he grows older and becomes a husband, a father, and an elder in his village, becomes increasingly an authority in some aspects of his social relations.

Secondly, one's status in the society is, with little qualification, inherited. One does not earn it; one is born to it. The families of the politically dominating groups, who usually also are economically powerful landed groups, provide the officers of the armed forces and the professional classes as well as the political leaders. Lesser elites also perpetuate their status, though with somewhat greater mobility.

These characteristics of the society as well as its techniques of production are traditional and change very slowly. While the model of a completely unchanging traditional society is a construct, an ideal type, it is sufficiently relevant to reality to be useful. From the beginning of agriculture in the world until say 1600 the traditional state of society persisted everywhere except that occasionally, here and there, there was a bursting out of the traditional mode for a few hundred years, then a lapse back into it, sometimes at the original technical level, sometimes at a higher one. The present-day transition to economic growth is such a bursting out. We must ask, Why has the traditional state of society been so persistent ? and then, Why have the bursts of change occurred ? Or at least, Why have the modern bursts of change occurred ?

One condition sometimes suggested as an answer to the first question is that the instruments of power were in the hands of the elite. The traditional authoritarian hierarchical state persisted, it is suggested, because the elite kept the simple folk in subjection by force. This explanation seems inadequate. It is possible for a small group to keep an unwilling ninety-seven per cent of a society in subjection by force for a decade or two, or perhaps for a generation or two, though if the subjection persists even this long one must ask whether it really was entirely unpleasing. But that the masses were kept in subjection primarily by force for many centuries seems improbable. The authoritarian hierarchical traditional social structure must have persisted because submitting to authority above one, as well as exercising authority, was satisfying, and secondly because the conditions of life re-created personalities, generation after generation, in which it continued to be so.

CREATIVE AND UNCREATIVE PERSONALITY

To suggest probable reasons why authoritarian social structure was satisfying, let me digress to discuss certain aspects of personality.

Many elite individuals in traditional societies are prevented from using their energies effectively in economic development by their repugnance to being concerned with the grubby material aspects of life. The repugnance includes being concerned with the details of running a business effectively, as well as performing manual-technical labor—"getting their hands drity.'' Often the repugnance is largely unconscious; the individuals concerned often deny it, because it does not occur to them that any middle—or upper—class person anywhere would have any more favourable attitude toward engaging in such activity than they have. Why does this attitude exist?

It is deep-rooted. I would explain it as follows. Every person in any society who holds or gains privileged position in life must justify it to himself, in order to be comfortable. If he has gained it by his abilities, justification is easy. The person who gains it by the accident of birth is forced to feel that it is due to him because he is essentially superior to the simple folk. Typically, the elite individual in traditional societies feels that his innate superiority consists in being more refined than the simple folk. One evidence of his greater refinement is that he does not like the grubby attention to the material details of life which is one of their distinguishing characteristics. However, this attitude may have developed historically, once it exists the elite child acquires it from infancy or by perceiving the words, the attitudes, the tone of voice of his elders. By the time he is six or eight years old, it is deeply bred into his personality.

This attitude alone would not contribute to the lack of innovation in social and political fields. Presence of a low level of creativity, however, would help to explain absence of innovation in these fields as well as in techniques of production.

The explanation of a low level of creativity and justification for the assertion that it exists are more complex.

One component of creativity is intelligence, and intelligence is in part due to biological characteristics. However, although individuals differ greatly in inherited intellectual capacity, the best evidence suggests no reason to assume any appreciable average difference in this respect between the individuals of traditional societies and those of other societies. There are varying degrees of innate intelligence in both. Persons in traditional societies are not less creative because they are less intelligent.

A more relevant component is certain attitudes. In formal psychological terms, I would suggest as characteristics central to creativity high need (for) achievement, high need autonomy, high need order (though this needs further definition), and a sense of the phenomena about one as forming a system which is conceptually comprehensible, rather than merely being arbitrary external bundles.

A person who has high need achievement feels a sense of increased pleasure (or quite possibly a lessening of chronic anxiety, which is the same thing) when he faces a problem or notes a new and irregular phenomenon in a field of interest to him; by the pleasure he anticipates in using his capacities he is drawn to use his energies to understand and master the situation. A person with high need autonomy takes for granted that when he has explored a situation in an area of interest to him, his evaluation of it is satisfactory. He does not think he "knows it all"; he seeks ideas; but when he has thus gained a perspective he assumes that his discriminations and evaluations are good; he feels no anxiety about whether the judgements of other persons differ from his. He does not rebel against the conventional view for the sake of rebelling, but neither does he accept it because it is generally accepted. In Rogers' phrase, the "locus of evaluative judgment is within him."[4]

A person with high need autonomy and also high need order, in the sense in which I use that phrase here, tolerates disorder without discomfort, because sensing that the world is an orderly place, he knows that within the disorder there is complex and satisfying order, and he is willing to tolerate the disorder, and in fact even enjoys it somewhat, until the greater order shall suggest itself to him. Such a person is alert to phenomena which contradict his previous assumptions about the scheme of things, for he assumes that he will be able to perceive the order implicit in them and thus gain an enlarged understanding of the world. In Poincare's terms, he has a "capacity to be surprised"; in Rogers,' "openness to experience."[5]

These characteristics are not fully independent of each other. In technical jargon, they may not be orthogonal. This categorization of personality therefore does not quite go to the roots of things. But it will do for my present purpose.

This personality complex may be contrasted with one which for the moment I shall term merely uncreative. It includes low need achievement and need autonomy, high need dependence, high need submission-dominance, and a sense of the world as consisting of arbitrary forces.

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[4] H. H. Anderson, ed., *Creativity and Its Cultivation* (New York: Harper and Bros., 1959), p. 76

[5] Poincare's phrase is quoted by Erich Fromm in H. H. Anderson, op. cit., p. 48; Rogers' is at ibid., p. 75

If an individual does not trust his own capacity to analyse problems, then when he faces a problem, anxiety rises in him. He anticipates failure, and avoids problems. He will find comfort in the consensus of a group (not on a majority decision opposed by a minority, for this involves a clash of judgment and the necessity of choosing between the two judgments). He will find it comfortable to rely on authority for guidance—the authority of older men or of the appropriate person in the hierarchy of authority and status which is always found in a traditional society. He will enjoy having a position of authority himself; one reason for this is that if he must make a decision, he can give it the sanction of his authority; persons below him, if they in turn find it comfortable to rely on authority, will not question his decision, and he does not need to feel anxiety lest analysis of it would prove it to have been wrong. It is right because a person with the proper authority made it.

A person with such needs will avoid noting phenomena that do not meet his preconceptions, for their existence presents a problem. In any event, since he senses the world as consisting mainly of arbitrary forces, an unexpected phenomenon provides no clue to him. It is simply a possible source of failure or danger.

I shall suggest below that the experiences in infancy and childhood which give a person this perception of the world, inculcate rage and need aggression in him, but also fear of his own need aggression, and therefore anxiety in any situation within his group in which power relationships are not clearly defined and conflict leading to aggressiveness might occur. Hence he likes a clearly defined structure of hierarchical authority, in which it is obviously proper for him to submit to someone above him or give orders to persons below him, without clash of judgment. In addition, his need aggression also causes him to feel pleasure in dominating those below him—his children, his juniors, his social inferiors.

Thus there are dual reasons why the authoritarian hierarchy is satisfying. It is appropriate to give this personality type not merely the negative label "uncreative" but also the positive one "authoritarian."[6]

While it is evident that these two personality types exist, to this point it is purely an assumption that authoritarian personality is typical in traditional societies. One reason for thinking that this is true is that this hypothesis explains many things about traditional societies which otherwise are puzzling. It explains, for example, why many persons in traditional societies not only follow traditional methods, but seem to cling almost compulsively to them, even though to an outsider trial of a new method seems so clearly to their advantage. It explains why the method of decision of local problems in so many traditional societies is by consensus of the village elders, through a long process of finding a least-common-denominator solution on which all can agree, rather than by majority vote. It explains, too, why authoritarian social and political systems have persisted in such societies for such long periods.

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[6] It is not congruent in all respects with the one portrayed by Adorno and associates in *The Authoritarian Personality*.

That a hypothesis explains a number of phenomena which are otherwise puzzling is a strong reason for accepting it. However, there is also more direct reason for believing that authoritarian personality is unusually prevalent in traditonal societies. This reason lies in the existence of some evidence that childhood environment and childhood training in traditional societies are of the kind which tend to produce such personality.

Perhaps the factor which is most important in determining whether childhood environment will be such as to cause the formation of creative personality or such as to cause the formation of authoritarian personality is the opinions of the parents concerning the nature of infants and children. Suppose that the parents take for granted that infants are organisms which, while delicate and in need of protection for a a time, have great potentials; organisms which as they unfold will develop capacity for understanding and managing life. A mother who regards this as an axiomatic fact of life will if she is sensible take precautions to keep her child's explorations of the world around him from causing harm or alarm to him, but she will let him explore his world and will watch with interest and pleasure as his muscular capacities develop, his range of activity expands, and he accomplishes in endless succession the hundreds of new achievements which occur during infancy and childhood.

His repeated use of his new physiological capacities, as they unfold, is from his viewpoint problem solving—intensely interesting problem solving. Assume that it is successful because his mother has taken safeguards so that he will not fall out of his crib, cut himself, break the glassware, fall down stairs, etc., and because his mother offers advice and restraint when necessary. Assume, however, that his venturings do not meet repeated restraint, because his mother trusts his developing capacities and does not check his every step. Then he will repeatedly feel joy at his own successful problem solving and pleasure in his mother's pleasure. There will be deeply built into him the pattern that initiative is rewarded, that his judgment is adequate, that solving problems is fun.

If his mother wants him to be self-reliant, presses him to do things as soon as his capacities have developed, usually refuses to let him lapse into babyhood after he has gained capacities, and shows displeasure when he does not do things for himself, then the stimulus of her displeasure when he does not show initiative will be combined with that of her pleasure when he does so. I have mentioned only his mother. During the first year or more of his life, her attitude is the most important one in his life; after that the attitude of his father (and also that of his siblings) toward his behavior will also be important.

Suppose, alternatively, that the child's parents have as a part of their personalities the judgment that children are fragile organisms without much innate potential capacity to understand or manage the world. Then during the first two years or so of life the mother is apt to treat the child over-solicitously, and to shield him somewhat anxiously from harm. In doing so, unintentionally she also keeps the child from using his unfolding initiative. The use of initiative comes to alarm him, because it alarms her. Then, after these first few years of life, when the parents think the child is old enough to be trained, parents with the view that children are without much potential inner capacity train the child by a continual stream of commands and instructions concerning what is good to do and not good to do, the proper relationships to them and to others, and in general how he should live. Exercise of initiative on his part frequently brings alarm and displeasure and hence causes him anxiety. He can avoid anxiety only by passively obeying the instructions of these powerful persons so important in his life. The instructions will often seem arbitrary to him, and the repeated frustration of his initiative will create anger in him. He will repress it, but this does not mean that it disappears.

The practices and attitudes of older siblings and playmates who have been brought up under the same influences will provide models which in various ways will reinforce the same lesson.

The impact of these parental attitudes on the child may be reinforced by certain related attitudes of the parents. The existence of any child restricts the freedom of his parents, and interferes with their relations to each other. Moreover, the child exerts a will independent of theirs, and they are not always sure that they can control him. If the parents, especially the mother, are relaxed confident people, they will not be disturbed by these problems. Suppose, however, that they are somewhat anxious persons who feel that they themselves do not understand the world (as they are apt to feel if their own childhood was like that which I have just described). Then their child may repeatedly make them anxious, and unconsciously they may hate him for causing them anxiety and also interfering with their freedom. The child is sure to sense their hostility; it will both make him more afraid to venture and increase his pleasure in venting his frustration by controlling someone below him later in life.

Exposure to the one or the other of these parental attitudes will have an impact on the child through infancy and childhood, but for brevity I shall mention specifically only the most conspicuous manifestation, that during the "period of infantile genitality," which usually occupies about the fourth and fifth years of life. At this age a boy knows that he is a male, like his father, and that he will become big, like his father, and he begins to wonder whether he can successfully rival his father. Specifically, be becomes a rival of his father for his mother's attentions. If his father and mother are perceptive and understanding persons, they will accept him into their fellowship and let him gain an adequate degree of the feminine attention he needs. However, without anxiety or arbitrariness, they will teach him that he can postpone his demands when the circumstances require it, and need not feel anxiety at the postponement. He will learn, as before, that one's initiative must be judicious, and he will also reinforce powerfully the earlier lesson that the exercise of his initiative is safe and brings pleasure.

If the father is weak and the mother is not arbitrary and somewhat rejecting, the son may gain his mother's attentions not because his parents understand his needs and meet them but because his father gives up at the boy's aggressive persistence. In this case too the son will learn that initiative is successful, though he will learn it with overtones of anxiety.

Suppose, however, that the parents doubt their own ability to manage problems, and, having no faith in the capacities of children, regard the boy's initiative as a danger rather than a valuable attribute. Then they will be disturbed by the boy's emerging rivalry with his father during the period of infantile sexuality, will resent the boy's encroachment, and will "put the boy in his place." The experience will reinforce the anxiety and alarm that the boy felt earlier at the exercise of initiative. It will also reinforce the anger that the boy felt earlier at his parents' arbitrary restrictions, and since he cannot vent his anger at his parents, there is apt to build up in him an unformed desire to exercise arbitrary authority himself, and lord it over someone under him, later in life—just as the college freshman humiliated by hazing at the hands of sophomores often waits his turn to vent his humiliation on the new freshmen the next year.

The impact of the one or other type of parental personality on girls during this period is not quite parallel to that on boys, because of the different sexual role which girls have already learned. The differences will not be discussed here.

In these ways, creative or authoritarian personality is formed. There are many other aspects to the process, and many other aspects of authoritarian and creative personalities, which cannot be discussed here.[7] This brief discussion will, I hope, give the general flavor of both the personality types and the process which forms them.

I think that the reader may already have realized that the parental attitudes which lend to create authoritarian personality in the children are themselves components of authoritarian personality in the parents. That is, persons in whom authoritarian personality was created by the circumstances of their childhoods are apt to have such a view of life that they will in turn create an environment which will cause authoritarian personalities to appear in their children. The type, like most other personality types, tends to be self-perpetuating.

It is of great importance, then, that the scattered evidence which is available suggests that precisely the sort of childhood environment and training sketched above as conducive to the emergence of authoritarian personality is the sort prevalent in traditional societies. Fairly intensive sketches of childhood environment in Burma by Hazel Hitson[8] and in Java by Hildred Geertz,[9] and more fragmentary sketches relating to many Latin societies, indicate that in all of these cases childhood environment is precisely of this type. These sketches refer primarily to the simple folk, but there is some empirical evidence to suggest that they are true of personality and childhood environment among the elite as well.

And there is even more convincing evidence that various of the conspicuous characteristics of authoritarian personality are present in many traditional societies in Latin America and Asia. Though our knowledge concerning African countries is more limited, they are probably present in those countries as well. Hence it seems likely that a low level of creativity is also characteristic of such societies.

Presumably this personality type developed initially because the every day phenomena of the physical world were bewildering to unscientific man. Convinced of his inability to fathom the world, man began to protect his children zealously when they were infants and then train them minutely in the way in which they should behave to be safe. And so authoritarian personality appeared and perpetuated itself. Repugnance to concerning oneself with the humble material matters of life and with manual-technical labor also appeared among the elite, in the way sketched earlier in this essay, and tended to perpetuate itself.

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[7] For example, models are important in personality formation, and it is of interest to ask where the son of a weak father obtains models of successful behavior. There are several possibilities. This and other complexities must be passed over here.

[8] "Family Patterns and Paranoidal Personality Structure in Boston and Burma" (Ph. D. dissertation, Radcliffe College, April 1959).

[9] *The Javanese Family* (New York : Free Press of Glencoe, Inc., 1955) and "The Vocabulary of Emotion : A Study of Javanese Socialization Processes," *Psychiatry*, Vol. XXII (Aug. 1959), pp. 225-37.

II. SOCIAL CHANGE

How, then, did social change ever occur and technological progress and economic development ever begin?

Study of a number of countries in which there has occurred a transition from a traditional state to continuing economic development suggests that an important factor initiating change was some historical shift which caused some group or groups of the lesser elite, who previously had had a respected and valued place in the social hierarchy, to feel that they no longer were respected and valued. This derogation in some societies consisted of explicit indication of contempt for the functions or position of the lesser elite, in others of behavior by a new higher elite which seemed immoral, unmanly, or irreligious to the groups below them, and thus indicated contempt for the moral standards of the lesser elite.

I shall omit the example of England, which is complex and difficult to mention briefly, and shall refer briefly to high-lights of three other examples. In the 1650's the Tsar of Russia and Patriarch of Moscow, to attain diplomatic ends by adopting Greek practices, ordered certain changes in the ritual of the Orthodox church which the faithful felt to be heretical and to endanger their souls. There followed conflict and persecution, in waves of varying severity, even down to 1900. The Old Believers, who were the victims of this withdrawal of respect for their status in the society, were prominent in economic development in Russia in the nineteenth century. Concerning the twentieth, I have no information.

In Japan the feudal group known as the Tokugawa, who gained national power in 1600, imposed a peace which deprived the samurai of their traditional function; imposed rigid distinctions among social classes which had the effect of relegating the so-called "wealthy peasants," descendants of the lesser elite, to the rank of peasant; and to some extent demeaned other feudal groups, the so-called outer clans. It was the lesser samurai and wealthy peasants, apparently especially of the outer clans, who were the innovators in Japan's industrial revolution.

In Colombia, in the 1530's the Spanish settled on a high plateau around Bogota and in the valleys around Cali and Medellin. Through historical developments I shall not sketch, during the next two centuries the settlers of the other two areas came to look down on those in Antioquia, the valley around Medellin. The social friction continues to the present; and the Antioquenos have been the leaders in economic innovation out of all proportion to their numbers in the population.

I shall call such events "withdrawal of status respect" from the group no longer accorded its old place. It is important to note that the situation is one in which a group of the elite once had full status respect and later lost it. What are the results? Let me speculate concerning them.

I suggest that among the adults of the first generation so affected, the reaction is anger and anxiety. Their children, however, seeing that their parents' role in life causes anxiety, do not find it a fully satisfying model. Alternative roles are in general not open to them, and so they respond by repressing somewhat within themselves their parents' values—by ceasing to have any role values with the same clarity and intensity their parents did. The process, I suggest, is cumulative in successive generations, and in the second or third or fourth generation there appears pronounced "normlessness," shiftlessness, anomie, or, in Merton's term, retreatism. It can be observed, for example, in Negroes of the southern United States, American Indians on any reservation, first and second generation immigrants, and colonial subjects.[10] Historical records suggest that it also characterized the Antioquenos, the samurai, and the Old Believers.

There is reason to suspect that retreatism affects men more than women because of the differences between the normal social roles of the sexes. After several generations, then, there will appear men who are retreatist and weak, but women who are less so. The women will probably feel some pity for their children's lot in life, and will cherish them tenderly. But, reacting to the ineffectiveness of their husbands, the women will have an intense desire that their sons shall be more effective, and will respond with delight to each achievement in infancy and boyhood. During the period of infantile sexuality, the boy will win in the rivalry with his father, both because his initiative pleases his mother and because his father is weak.

Obviously not all home environments in some generation of a group of the lesser elite from whom status respect has been withdrawn will be like this, but it is plausible to believe that some such environment will appear occasionally, or even fairly often. Some combinations and intensities of such maternal attitudes, combined with weakness in the father, provide an almost ideal environment for the formation of an anxious driving type of creativity.

Where a considerable degree of creativity is inculcated, but the anxiety is great, a variant type of individual may appear, one who gives himself security by being traditional and authoritarian in most aspects of his behavior, and then dares to be bold and creative in some other aspect. Henry Ford was such a person, as was J. Pierpont Morgan. And this type has been important in economic development in Japan, the Soviet Union, and Germany.

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[10] In groups who are not of the lower elite, but instead are of the "simple folk," the later reaction may be not creative innovation but violent social revolt. For lack of space, that branch of the theory cannot be expounded here.

Thus, I suggest, there gradually emerges a group of individuals, creative, alienated from traditional values, driven by a gnawing burning drive to prove themselves (to themselves, as well as to their fellows), seeking for an area in which to do so, preferably also one in which in some symbolic way they can vent their rage at the elites who have caused their troubles. Moreover, their (perhaps unconscious) rage at the group disparaging them will cause them to turn against some of the values of the group disparaging them. The fact that the disparaging group, in the cases cited above, was traditional, is one of the reasons why the disparaged group rejected traditional values and turned to innovation.

What they turn to will be determined in part by the models they find during their childhood somewhere in their history or their folklore or the tales their elders tell them of the life around them, and in part by the objective opportunities of the world around them. In the modern world, to few socially rebellious groups of traditional societies will any other road to power, recognition, and proof to onself of one's ability seem as inviting as economic prowess, and creative individuals in most such groups will become economic innovators. In the cases of England, Japan, and Colombia, which I have examined in some detail, such groups have provided a disproportionate share of the leaders in the transition to economic growth.

A word is in point concerning the complexity of the situation in colonial societies. Here there has been rather harsh withdrawal of status respect, but by invading groups from the West who became colonial conquerors. These groups have no traditional but "modern" values toward manual-technical work. The tendency of disparaged groups to reject the values of the disparaging group may cause them to reject engaging their energies in the occupations of the conquerors. Thus even though they desire to gain symbols of economic power, an additional emotional block is put in the way of the indigenous elite becoming effective industrialists. This fact may explain some of the ambivalence and erratic behavior sometimes manifested.

The theory some of whose central points have been sketched so briefly above proceeds in broad sweeps, and of course is subject to a corresponding margin of error. It seems plausible to me because it is internally consistent and because it explains many aspects of social, political, and economic behavior in low-income countries for which no other very logical explanation seems available.

If it is correct it does not follow that economic growth will succeed only where certain rather special historical conditions have existed. For the forces of modern history have caused social tensions among the social classes of low-income societies themselves, by virtue of which some degree of withdrawal of status respect has existed among the indigenous social classes of almost all of them, and what values various groups are alienated from or draw to is confused and uncertain. However, innovational personality is clearly appearing, in varying degree. The drive for security, self-reassurance, and power will surely lead many innovational individuals to technological innovation, though frequently within social forms differing from those of the West.

KAMLA CHOWDHRY

Organizational Change as a Generational Problem*

I plan to discuss the problem of generational conflict in management from three points of view: first, the life phase at which the young manager enters his first job; second, the implications of conceptual knowledge that the young manager acquires, as distinct from competence based on experience acquired by the older generation of managers; and third, the rate of obsolescence of knowledge and its implications to generational relationship.

In this paper, I shall focus on what we, the older generation, can learn from the young. They, of course, have things to learn from us too. I hope, but my focus is on our learning from their "feedback." Without accepting everything they say about their experiences as gospel truth, I hope we can listen and understand what they are trying to tell us.

THE LIFE PHASE OF A YOUNG MANAGER

THE YOUNG MANAGERS I have in mind are in the age group of 20 to 25 years, have gone through 16 to 18 years of education, and are physically, psychologically, socially, and vocationally ready to assume the adult role. They are intelligent, and many in their school and college days held leadership positions. Even in choosing to come for post-graduate training in management they were seeking what was appropriate at their life phase—an intellectually challenging environment and the opportunity to prove their worth. Let me quote from a few of them.

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* Reprinted by permission from *Management of Conflict* (Ahmedabad : Indian Institute of Management), 1969.

Ganesh, at the age of 21, joined a firm of auditors. Regarding his two years in the firm he said :

> From the beginning I was not satisfied with the type of work. Mostly the job consisted of making routine checks, calculations, and tabulations. My boss, who was an elderly chartered accountant and had spent a life time on such work, used to assure me that after two to three years I would get an opportunity to finalize accounts and prepare financial statements. . . .These two years were the unhappiest of my life.[1]

There is a generational gap in the way time is perceived by the two generations. At the age of 21, two to three years of one's life seem a great deal. To the older accountant, two to three years was a short period to appease Ganesh. Young people have a much greater focus on the present than on the future.

After two years, when Ganesh could stand the boredom of office work no more, he resigned. Ganesh, in a sweeping gesture of leaving a way of life behind, left not only his job but also his home and the city he lived in. Describing his feelings at this time he said :

> I felt a great sense of relief when I chucked that clerical position. My disposition became more cheerful; and for the first time I felt independent; staying in a hostel and managing my affairs exhilarated me.

There are many young men like Ganesh. It is important for us to understand what these young men are trying to tell us. One of the needs that these young men express at this stage of their life cycle is for some degree of autonomy and independence. All over the world there is an increasing tendency in the sub-culture of the young to seek greater independence and autonomy. Long periods of schooling have prolonged the adolescence and the youths' dependency. At this stage of their life cycle they search for an organization which promises them an adult role and a man's work. Take the example of Kirti.

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[1] At the Indian Institute of Management, Ahmedabad, a study was undertaken to understand the problems of young people. The students were asked to write about their developmental phases with special reference to the vocational development. Subsequently, interviews varying from one to several hours were held with each student. Subsequent quotations in this article are from the interviews and statements given by the students.

Kirti came from a poor family, was hard working, and was a first class student. Most of his education was financed by scholarships or part-time work he did whenever he could. At 21, after M. Sc., he was selected by the Public Service Commission for a job in a public sector organization. The father was against Kirti's leaving their home town. Kirti, however, felt he was now grown up and an adult. Let us look at Kirti's attempt to be an adult and the beginnings of his first job:

> He (father) bid me farewell after preaching me that I shall not trust strangers in matters of eating, I shall be a vegetarian and pursue a good character. But at the age of 21, I felt I knew what was good for me and what was not.

Kirti was a good son, but he needed a greater degree of independence than he would find living at home. So Kirti left his parents and his home town. He said, "I became an independent person." Here again there is a sense of breaking with the past and the hope of becoming an independent person.

Kirti worked in a public sector organization for three years. About his work, he said :

> The routine job brought me boredom. I wanted to do something stimulating and creative. I was in a bureaucratic system, a system I began to despise.

A bright engineer was about to become part of the "brain-drain." At 24, he applied for a job in Canada and left his job and his country.

These are not stray examples; they are typical of many of our intelligent young men—men who aspire for independence and achievement, men who are willing to work hard and prove their worth. There is a story these experiences tell us of the generational gap. The older generation of managers seem to behave like fathers—perhaps good fathers who want to teach their children what is good for them, but find it difficult to acknowledge that children grow up and at 21 or so are ready to assume adult responsibilities. Independent young men under such circumstances prefer to leave their homes and seek their future elsewhere so that they can be treated as adults.

In jobs too, when young men find they are not treated as adults and are given minor jobs under supervision, they leave their jobs hopefully to find more challenging opportunities elsewhere. The older generation—fathers and managers—sees the young manager as a child who is unable to fend for himself and needs looking after as a young son.

In the process of becoming an adult, the young person has to confront and to resolve in some fashion his strivings towards autonomy and a re-arrangement of his relationships with adult figures. The re-arrangement of relationships means a much greater degree of mutuality. Thus the young are willing to take the adults seriously if the adults are willing to take them more seriously. If mutuality between the generations is to be established, the young need to feel that they can contribute seriously to the adult world.

Young managers like Ganesh and Kirti, who have unusual abilities and competence, need opportunities of exercising initiative, of independence, and of assuming responsibility. There is a serious generational gap. The older generation wants the young managers to be on the learning end a year or more and to start work on simple jobs. They want to help and to guide the young in solicitous ways. The young managers, on the other hand, believe that they have been trained long enough, are equipped with concepts and techniques, and are ready for opportunities to apply their knowledge and to demonstrate their potential. They argue that if they are to be men, they need to be given adult responsibility.

Perhaps, one of the first steps in resolving the generational conflict in management is to understand the problems of young people, especially the problems of the young manager trying to prove his worth and his adulthood. If the older generation of managers hopes to contribute to the development of a mature new generation of managers, they must understand the life phase at which the young manager enters the organization. Increasingly, organizations will have to create conditions for the exercise of initiative and a greater degree of independence in the work situation.

KNOWLEDGE AND EXPERIENCE

During the last few decades there has been considerable growth in knowledge, concepts, and new techniques that facilitates the understanding and solution of management problems. This growth in knowledge has been in many areas in which decisions previously were made on the basis of experience and intuition. The knowledge gap between the generations is essentially based on the structure of knowledge that each has acquired. The young managers on the whole are better equipped with conceptual and analytical tools, whereas the older managers are better equipped with mature judgment and other intuitive qualities acquired from long and sometimes painful experience. The conflict of generations arises when the difference in the two types of knowledge is not sufficiently realized.

The difference in the two kinds of knowledge can be seen by contrasting the skills of the scientist with those of a carpenter. A skillful carpenter, who works with many different kinds of woods, acquires a a great deal of experience and "acquaintance" with the properties of wood. Because of his experience, he knows how different woods would behave in different conditions. He has no analytical knowledge about the properties of wood or of their response to different pressures and temperature controls. Without it he can still exercise his skills, but the exercise of his skills would be limited to familiar wood. If he comes acroos some very unusual wood, he may refuse to work on it because it is not a part of his experience. Knowledge based on experience and familiarity has its limitations.

Let me give another example indicating the difference between practice based on conceptual knowledge and practice based on "knowledge of acquaintance." When people designed and built water pumps before Galileo, their pumps could raise water up to approximately 34 feet. In designing and building pumps these people were not applying any knowledge about the weight of air. Such knowledge did not exist. But with the growth of conceptual knowledge in physics, new and better pumps could be made, and water could be made to rise much higher than 34 feet.

Knowledge of the analytical properties of wood, or knowledge of the weight of air, does not by itself lead to more skilful practice or better pumps. But a working base in conceptual analytical thinking very soon leads to better formulation of problems, to better decisions, and to more skilful behaviour.

Let me illustrate the kind of generational conflict that arises when young managers try to apply their conceptual knowledge and question long-established practices based on experience.

Vinay, 24 years old, joined an established and reputed manufacturer of industrial chemicals in Calcutta. He described his initial work experience as follows :

> I was accorded excellent treatment at the head office, where I underwent induction training. . . . I was asked to work on the costing system of the equipment factory. . . . . I was not very well received by the works accountant and the assistant works accountant. . . . They did not tell me much. . . . What I learnt about the existing costing system from them was a vague outline and nothing more.

After a great deal of hard work, Vinay completed his study of the existing system. Subsequently, after considerable discussion with the works accountant and the assistant works accountant, Vinay suggested how the costing system could be improved to provide more accurate data for control purposes required by top management. He proposed changes in five areas of the costing system.

According to Vinay the allocation of costs in the existing system was based more on hunches than on any scientific method. Vinay's recommendations were rejected. The reasons put forward for rejecting the recommendations were :

- *It is not necesary to change the system as we have been working with it successfully for so many years.
- *It is not necessary to have such accurate data.
- *These are bookish suggestions and are not possible to implement practically.

The way Vinay percieved the generational gap and the generational conflict was as follows :

> They were old-timers and had risen from the ranks. The system they knew was outdated. They had not kept pace with the changing technology, so they were unable to appreciate the sophisticated tools and new concepts.
>
> My age and experience were very much less than theirs. Apart from this I had studied the costing system for four weeks and had come out with improvements. They could not reconcile themselves with this situation. It hurt their ego.

Vinay had believed that in a rational organization facts would speak for themselves. But facts when spoken by young managers to older managers do not always speak for themselves. They require interpreters and in-betweens and "soothers of feelings."

This little example sums up a multiplicity of problems related to generational conflict in management—confrontation between a conceptual approach to the solution of problems and successful experience; the fear and insecurity of recognizing obsolescence of practice, especially when acquired after long personal experience; the difficulty of accepting new ideas from young people; and the implications of reversal of roles (who guides whom ?). Sensitive top managers recognize these problems and are attemping to find peaceful solutions between the "concept wallahs" and the "experience wallahs." It seems to me that in the very near future management thinking and orientation will undergo a revolution comparable to the Copernican revolution of the 16th century. At that time the earth was regarded as a fixed point around which the sun revolved. This is what common sense and observation indicated. Copernicus, however, suggested a new conceptual way of thinking. Although his thinking ran counter to first-hand experience and observation, it did help to explain more facts systematically. The conceptual thinking of Copernicus was viewed with alarm and consternation. Not only did his thinking contradict "conventional wisdom," but in the process, it dethroned earth and consequently man from a central to a peripheral position. Darwin did the same. Man, who until then had been considered made in the image of God, was dethroned and became merely an extension of the evolutionary concept. There was a great outcry against Darwin and Copernicus in their day. Concepts which threaten the importance of man are not easily acceptable.

The Copernican revolution in management is also likely to meet with resistance. First-hand observation and experience, which have been extremely useful, are no longer sufficient to explain the wide range of events. Those equipped with conceptual knowledge are likely to explain and deal with a wider range of phenomena. And for those managers who might be dethroned from a central position in the management system, I would like to quote my teacher Prof. Fritz Roethlisberger :

> The history of civilization has shown that when man has divested himself of egocentricity and anthropomorphism he has become not only more effective but also more moral, mature and civilized as well. In the same manner I believe that the more the executive can accept gracefully the fact that the organization does not revolve solely around him, the better executive he will become. When he begins to measure things from many different points of view and not only his own, what at first may feel like the beginning of his end will become the beginning of a new adventure and his growth into professional competence.[2]

The generational conflict will be minimized when there is a shift in emphasis from experience-based knowledge to conceptual-based knowledge. The weight of history is in this direction.

OBSOLESCENCE OF KNOWLEDGE

An essential feature of the present society is the rate and complexity of change. The obsolescence of knowledge is the most characteristic feature of our times. This means that knowledge and experience gained 10 years ago is no longer relevant to the events and problems of today. Jerome Wiesner of the Massachusetts Institute of Technology said regarding the education of engineers :

> Although it was possible to train an engineer twenty-five years ago

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[2] Fritz Roethlisberger, *Man-in-Organization* (Cambridge, Mass : Harvard University Press, 1968), p. 218.

> on the assumption that his skills would be useful for most, if not all, of his professional life, such an approach to engineering education is altogether unrealistic today. Ten years is perhaps the longest time a typical research or design engineer can expect to be effective today without a continuing education or a major effort to refurbish and update this basic and his specialized professional skills. So it is not surprising that the demand in some of the main technical fields for the most recent graduates of the better engineering schools exceeds the demand for experienced men with, unavoidably, more dated academic training.[3]

If we accept that in management also there has been an enormous growth of knowledge and that many of the earlier assumptions and ideas have become obsolete, several very significant implications arise regarding the relationship of generations. The change may mean that younger managers may know more about their specializations; they will demand higher salaries, a more egalitarian organization structure, and a different relationship with top management. Again, organizations will have to make a major effort to refurbish and update the basic and specialized skills of their older and senior managers.

If we look realistically at the world today, we realize that the problems of teaching and learning have changed radically. The vertical transmission of knowledge by the experienced person to the young and inexperienced person is no longer a one-way traffic. This was the system of transmitting "accumulated wisdom" when societies were stable with little change. But in a world full of new knowledge, with all the modern devices of communication, vertical transmission has to be supplemented by a lateral transmission of knowledge. Anyone who teaches another individual can do so only if he is in touch with new knowledge. Senior managers must, not once but several times in their life span, get acquainted with the steady stream of new knowledge—and this is largely accomplished laterally through management development programmes. In the USA, I believe 10 years is considered long enough to produce a generational gap in management. There are more executives who are sponsored to programmes than there are graduate students in universities. The concept of obsolescence is well understood in Indian industry; its boundaries, however, need to be extended to include not only machines and products but managerial skills of decision-making.

If we do not recognize the rate at which there is obsolescence of knowledge and obsolescence of our ideas and skills, there is bound to be generational conflict. Obsolescence really means living behind the present, a break with the past and acceptance of new ideas and new ways of doing things.

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[3] Jerome B. Wiesner, "Education for Creativity in the Sciences," *Daedalus*, XCIV, 3 (Summer 1965), p. 527.

SUMMARY AND CONCLUSIONS

The rapid expansion of the scientific, technical, and managerial field and the rapid rate of change within them has produced many puzzling and vexing problems for society at large and for the many established institutions of society. The profusion of new concepts and theories has meant a much longer period of training and education. Young men, instead of starting to be useful to their communities and societies from the age of 12 or 16 or thereabouts, have to wait till their late twenties. Young managers at 23-25 years of age are impatient to end their dependent role and assume the responsibilities of adulthood. Because of the stage in the life cycle at which the young managers enter their first job, the need for autonomy, initiative, and challenging opportunities is more acute than in the earlier days of the apprentice manager.

Our trained young men form a very vital resource. We need to recognize and appreciate this resource with all its problems, and provide our youth with adequate opportunities to be more productive. Not only must they learn to adapt to existing systems and practices, but the organization has to be seriously determined to accommodate their skills. The government, industry, and business of tomorrow will need managers and administrators equipped to deal with the complex problems of the new society.

The new managers will need strong support because there will be a generational conflict. Many notions based on experience and many aspects of what Galbraith calls 'conventional wisdom' will have to be given up. And although there may be conflict between the generations, between the supporters of conceptual knowledge and experience-based knowledge, the alternative is clear and supported by the weight of historical evidence. To refuse to establish a new managerial climate is the beginning of the end. In 1912 Whitehead made this observation concerning the importance of trained intelligence :

> In conditions of modern life, the rule is absolute, the race which does not value trained intelligence is doomed. . . Today we maintain ourselves. Tomorrow science (knowledge) will have moved forward one more step, and there will be no appeal from the judgment which will then be pronounced on the uneducated.[4]

[4] *Ibid.*, p. 537.

Fortunately for us, our government and industry have started recognizing this fact. And although the going may be rough, there is no other alternative.

With the growth of knowledge there is obsolescence not only about the material bases of our society but, as Wiesner points out, "obsolescence of much of the specialized training of the manpower that sustains the system."[5] With the rate of obsolescence, Margaret Mead has suggested "the whole teaching-and-learning continuum which once was tied in an orderly and productive way to the passing of generations and the growth of a child into a man—this whole process has exploded in our faces. Yet even as we try to catch hold of and patch up the pieces, we fail to recognize what has happened. . . . . "[6] To recognize what has happened means continuing education throughout life—it means going back to school to learn what new knowledge has emerged.

> In concluding, let me restate and re-emphasize that the young managers I have discussed are those who have acquired post-graduate training in management education. The focus of the paper was in our understanding and our "listening" to their problems and points of view when they attempt to use their knowledge. I realize that all senior managers are not imprisoned by their experiences and that many are able to rise above their personal experience and take into account wider perspective. I also realize that the art of management is something more than the science of management and that for effective management both are needed. The strength and uniqueness of senior management is in conveying qualities not generally discussed in books of scientific management—the importance of responsible and ethical action, of care and concern for people in the process of decision-making, of loyalty and commitment. With scientific knowledge the physicists were able to produce an atom bomb. But the decision to use it required not scientific considerations but deeply moral considerations. Oppenheimer had said, "We physicists have known sin." The young managers too, in the scientific knowledge they acquire, can become arrogant and know sin, unless they are helped by the older generation—fathers and managers—to use knowledge with a sense of responsibility. If organizations are to have vitality and strength, there must be a climate of mutual respect for the uniqueness of contribution that each generation can make. The uniqueness of youth

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[5] *Ibid.*, p. 527.

[6] Margaret Mead, "Why is Education Obsolescent," *The Teacher and the Taught : Education in Theory and Practice from Plato to James B. Conant*, ed. Ronald Gross (New York : Dell Publishing Co. Inc., 1963).

is passion, the uniqueness of age is compassion. It is the integration of youth and age, of knowledge and experience, of growth and obsolescence, and of passion and compassion that will contribute to a new outlook on management.

GENE W. DALTON, LOUIS B. BARNES
AND A. ZALEZNIK

Approaches to Organizational Change

THE NUMBER of approaches to the introduction of change in organizations is infinite and each will have some impact on the authority system. It is possible, however, and useful to classify the major approaches to organizational change in use over the last several decades and examine their impact on authority. One fruitful classification divides these approaches according to the organizational variable most prominent in the change attempt. Using such a classification, we shall briefly consider three approaches to organizational change and their effect on authority. They focus on:

(a) changes in the technology,
(b) changes in shared norms and values, and
(c) changes in formal organization structure.[1]

These three variables are by no means independent. The demands of a certain technology often necessitate accommodating shifts in organizational structure. The emergence of certain behavioral norms is influenced by the formal structure, and the structure is often very much a reflection of the commonly held norms and values. Ultimately

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Reprinted by permission in parts from "The Concept of Authority and Organisational Change," in *Distribution of Authority in Formal Organisations* by Gene W. Dalton, Louis E. Barnes and Abraham Zaleznik (Boston : Division of Research, Graduate School of Business Administration, Harvard University, 1968), pp. 204-212.

[1] Our categorization of approaches to change was influenced by an article by Leavitt in *Handbook of Organizations.*

any change in one is likely to affect all three. In spite of the interdependence of these variables, however, the three approaches which concentrate on one of these variables differ rather strikingly. This difference can best be noted by examining the approaches themselves.

TECHNOLOGICAL APPROACHES

Some of the major changes in the authority relationships in work setting have been brought on by the introduction of new technical methods of producing goods. This is vividly illustrated if we step back far enough historically to recall the shifts away from the old master-apprentice system brought about by the machinery of the Industrial Revolution. Prior to its introduction, the employer was the owner, teacher, and role-model for a subordinate who would some day occupy the position of his master. The introduction of machine-paced, low-skill work, along with large multilevel organizational structure, profoudly altered authority relations. This shift was later accentuated by the advent of the moving assembly line, made famous by Henry Ford. The significance of technology for authority patterns as well as the social exchanges has been examined in this country by Walker, Guest, and Turner[2] and in England by researchers from Tavistock Institute who have come to conceptualize the firm as a socio-technical system.[3]

A second type of technological change, focused more directly on the authority dimension, is best represented historically by Frederick Taylor and the scientific management movement.[4] By creating a new technical skill—that of the industrial engineer, with his own set of tools (standards, piece rates, stop watches, etc.)—Taylor effected a remarkable shift of authority patterns in the factory. The industrial engineer, by virtue of an accepted expertise, took over much of the planning function from the line supervisor (as well as from the worker). The logics of work simplification and time standards became a potent source of authority on the factory floor. The first line supervisor, stripped of nearly all opportunity to influence how the work was to be done, lost much of the authority which had previously sprung from his knowledge and skill acquired over the years.

The modern-day counterpart of this type of technological change seems to be the introduction of operations research techniques. Again the approach is to separate out a set of planners (working from a highly logicized framework) from those who are to carry out the work. The effects which the introduction of operations research are having on the authority structure have yet to be systematically studied, but the striking parallels between OR and scientific management suggest that OR's impact on authority relations may be similarly dramatic.

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[2] Walker, Guest, and Turner, *The Foreman on the Assembly Line.*

[3] Miller, "Technology, Territory, and Time." Trist *et al.*, *Organizational Choice.*

[4] Taylor, *Scientific Management.*

VALUE-CENTERED APPROACHES

As we pointed out earlier, authority in an organization provides a primary source of power. It is built on the basis of shared values and beliefs about what is correct, or at least acceptable, behaviour for people in various positions in the organizaton. Some of these shared beliefs are taken from the larger culture; some have emerged within a particular organization as a resultant of past experiences in performing the organization's tasks. These beliefs and values provide the rationale for the formal organization, for job assignments, etc. They have also usually been translated into a set of norms for behavior informally enforced in the organization.

A second approach to organizational change, primarily advocated and practised by behavioral scientists who often refer to themselves as change agents, seeks to bring about change in the organization by directly seeking to alter these norms and values. In the technological approaches the logics of efficiency and cost were advanced to support change; in this approach the logics advanced are those concerning human motivation and personal growth.

The early work in what came to be called the "human relations movement" called attention to the power of the informal system and to the "authority" of the informal as well as the formal leader.[5] Those who conducted some of these early studies centered their efforts, not on altering authority relationships, but on helping the manager to recognize and understand the complex set of forces at work on the behavior of his subordinates.[6] One of the ways in which it was suggested the manager gain information about these forces in his own department was by "listening" and trying to "understand the other person from his point of view."

Such "listening" was not a neutral act, however. It altered the relationship between the superior and subordinate (or seemed to, depending on whether the manager was using this as a gimmick). Enthusiasts of this approach soon carried it far beyond the thinking of the researchers whose studies they cited and began exhorting managers toward an egalitarian "group-centered leadership" or "employee-centered supervision." Training courses were set up to teach the supervisors (mostly foremen) to take into account the needs and feelings of his men as a means of "motivating" them. These courses were ostensibly aimed at developing human-relations skills, but a new model for authority relationships was also being advanced which laid heavy stress on the value of "individual growth" and personal satisfaction. Organizations with traditional authority relationships were described as working at cross purposes with human development,[7] while the promise was held out that not only would the new model result in greater productivity but personal growth and satisfaction would also be maximized.

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[5] Roethlisberger and Dickson, *Management and the Worker*.

[6] Roethlisberger, *Management and Morale*.

The supervisor's training course as an instrument of organizational change was brought sharply into question by a study of the results of a training program at International Harvester Company. The study showed that the effects of the training program stressing a human relations model were nullified by the effect of the behavior of the supervisor's own chief. If the supervisor's chief was high on "Initiating Structure" for his subordinates, the supervisor reverted to the same pattern.[8]

In recent years, the advocates of training as an approach to organizational change have sought to correct the features of this approach which have most frequently been the targets of its critics. First, there has been an increasing tendency to define total organizational change as the objective. Instead of trying to alter the attitudes and values of selected supervisors, the thrust is to change those commonly held mores which concern "acceptable" and desired behavior in the organization. Training, therefore, is prescribed to cut across all levels of the organization.[9] Second, the attempt is made to start the training at the top of the organization and work down.[10]* Third, and perhaps most important, under current change attempts conditions are created which require that the members of the organization work out *with one another* the changes that are to take place in their relationships. Members are brought together to examine their present relationships (and compare them against certain criteria) and jointly work out changes. The methodological tool used to set up these conditions is what has come to be known as "laboratory training." The most well-known example of laboratory training is the "T Group," but there are also other variants. The central notion of using T-Group training is that participants are forced by the ambiguity of the situation, by the absence of legitimate external topics of discussion, and by the imperative of the Trainer to examine their own interpersonal relationships—the "here and now."[11] The apparent absence of structure pushes the participants toward defining and seeking joint solutions to their interpersonal problems in the group and to relate these to their back-home work relationships. The ambiguity of the laboratory setting and the sometimes jolting feedback have the purpose of "unfreezing" old relationships and authority patterns.

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[7] Argyris, *Personality and Organization*.

[8] Fleishman, Harris, and Burtt, *Leadership and Supervision in Industry*.

[9] Shepard and Blake, "Changing Behavior Through Cognitive Change." Blake, Mouton, Barnes, and Greiner, "Break through in Organisation Development."

[10] Argyris, *Interpersonal Competence and Organizational Effectiveness*, p. 281.

*Argyris (1962), after completing a training session with the top executives in a large corporation, cited his experience as proof for a need to begin there :

"One may conclude from this and other experiences that it would not be wise to start laboratory training in a given organizational unit at the middle or lower levels. One may imagine what would have happened if the control group (subordinates of the men in the top group) had gone first. The top would probably never have considered the program. . . . Unless the top could be influenced, changes made at the middle or lower levels could create even greater problems and at the best would remain incapsulated in that particular unit."

The "working out" of new relationships is the responsibility of the members of the organization, but the "change agents" are not indifferent as to the direction in which the authority patterns are shifted. As Leavitt points out, the "theoretical underpinnings, the prevalent values and the initial research results" of those who use this approach to change all point in the direction of "power equalization rather than power differentiation."[12] (Using our definition, the major attack is on the positional authority system.) An examination of the statements of the advocates of this approach make this point clear. Shepard and Blake point out that laboratory training is only a tool in an over-all program which is aimed at creating an "organic system" based on "mutual confidence and trust among members of the organization rather than authority-obedience relationships." A "wide sharing of control and responsibility" was cited as one of their objectives.[13] A training director in a west coast corporation utilizing T-Groups as a part of an organization development program set as one of their objectives the development of "norms within the organization that support open, direct confrontation of conflict (resolution of conflict without having to resort to the power structure)." Argyris states that the training experience (given to the top executives of a large organizational division) was aimed at replacing their "old" authoritarian values with "new" values.[14]

The methods used to achieve "power equalization" vary, of course. For example, Blake and his associates have developed a normative model of managerial behavior, and group relationships called the managerial grid, against which the members of the organization can compare their own relationships and which they can use as a model.[15] Others are quick to point out they have no such model as the grid. But even those change agents who do not advocate a specific normative model as Blake does make it clear through their behavior and their training designs that one of their major targets for change is the authority relationship. The T-Group itself is a power-equalizing device in which status and roles brought into the group are de-emphasized and made illegitimate. The trainer of the T-Group, or "cluster" as it is now sometimes called, provides a role model who deliberately attempts to divest himself of positional authority and seeks a place in the group differentiated from other members only by the "resources" he can provide as a professional expert.

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[11] Shein and Bennis, *Personal and Organizational Change Through Group Methods.*

[12] Cooper, Leavitt, and Shelly, eds., *New Perspectives in Organizational Research*, Chapter 4.

[13] Shepard and Blake, *op. cit.*

[14] Argyris, *Interpersonal Competence and Organizational Effectiveness.*

The effects of these recent attempts at organizational change utilizing laboratory training methods have yet to be determined. Some advocates claim that the pitfalls of the early human relations training courses have been avoided and that the changes being introduced are more likely to be more permanent. Unfortunately, there have been few systematic studies reporting the nature and the duration of the changes which are being introduced by this approach.

STRUCTURAL APPROACHES

Probably the approach most commonly used to alter authority patterns is the structural approach. Paradoxically, this is also probably the approach about which we have the least empirical data. The early writings in structural planning and change tended to be more prescriptive than descriptive. Principles were developed such as delegation of authority and assignment of responsibility, but as principles they were more likely to be expounded than used as variables in research. Some of the same assumptions about a unidimensional rational-legal authority seen in Weber's work were present in these writings. Authority was primarily seen only as positional authority. Where such authority was not accepted, stronger leadership and discipline were called for. Change attempts were most often a "clarification" of areas of authority and responsibility.

One prevalent approach to the use of structure in changing authority relationships has been characterized by the trend toward decentralization and the establishment of profit centers. The rapid growth of national and international corporations and the consequent difficulties of transmitting the necessary information throughout this complex system encouraged this trend. Along with this came the difficulties of taking the multitude of differential local factors into account in decision making and the desire to measure small unit performances. All these factors pushed this trend forward, although a number of management problems were raised in applying the idea.[16] The computer, however, a technological innovation, has raised into question and may be reversing the trend toward decentralization and authority dispersion in large corporations.[17]

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[15] Blake and Mouton, *The Managerial Grid.*

Research on the impact of the informal system in an organization, on emergent interpersonal relations, and on individual motivation for many years obscured structure as a primary change variable, at least in management literature. This research pointed out the naivete of some of the early structural approaches to change. On the other hand, studies such as the one reported by Worthy in 1950 rekindled an interest in structure as a potent influence on superior-subordinate relations. Worthy, reporting a study done by the personnel department of Sears, Roebuck and Co., found that the number of hierarchical levels in a store and consequently the number of people reporting to a superior were significantly related to the number of promotable subordinates developed, as well as to store profitability.[18] Some writers have criticized Worth's generalizations as oversimplified,[19] but his study helped raise renewed interest in the strategic importance of the structural variable.

Some current students of organizational change place strong emphasis on formal structure, management controls, and work flows as largely determining the behavior of the manager in his relations with others. Sayles, for example, claims that a manager's relationships are in large part a function of these structural factors :

> Given the division of labor characteristic of modern public and private organizations, the number of special interests and view-points represented in diverse groups whose efforts must be coordinated, the inevitable conflicts and incompatibilities among various control measures, and the dynamic shifts in structures and pressures, the manager cannot pick and choose his style with impunity. His managerial behavior is a function of the organization of work and the controls operating on him (rewards and punishments). He must adopt a variety of administrative patterns to fit the varying requirements of the interfacee where his job meets others.[20]

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[16] Smith, *Managing Geographically Decentralized Companies.*

[17] Burck, *The Computer and Its Potential for Management.*

[18] Worthy, "Organizational Structure and Employee Morale."

[19] Meltzer and Salter, "Organisational Structure and the Performance and Job Satisfaction of Physiologists."

[20] Sayles, *Managerial Behaviour*, p. 256.

Recent empirical studies of structurally initiated change in authority relationships are of several kinds. A large part of the empirical studies on the effect of organizational structure, such as the Worthy study, tend to be laterally comparative rather than studies of change within the same organization.[21]

A second type of study examines the changing of authority relationships within one organization and the effects of these changes over a period of time, but without differentiating between the bases on which authority is established. Examples of this type of study would include Brown and Shepard's study of organizational change in a research laboratory[22] and Guest's study of successful change in an automobile assembly plant.[23] Guest's study might also be categorized as a study in management succession in which the authority structure was varied as a consequence of new management.

Only a few organizational changes fall into a third category, those which examine the struggle between the systems of position-based and knowledge-based authority. Although each uses a somewhat different language system from the one used here, three very interesting studies might be included: Jaques' *The Changing Culture of a Factory*,[24] McCleery's study of the warden's efforts to change authority patterns in the Oahu prison,[25] and Lawrence's study of behavior change in a supermarket chain.[26] Two common features should be noted in these instances of structural change. First, most were initiated by management rather than by outside agents. Second, in most cases they were consciously planned changes rather than changes almost completely imposed as were many of the technological changes. It is these two features which point up the need for an increased understanding of the problems and dynamics of this approach to organizational change, for the accessibility of structural change as a tool of line managers and its seeming susceptibility to rationalistic planning are likely to assure that the greatest part of deliberate change will continue to be initially structural in nature.

[21] Burns and Stalker, *The Management of Innovation.* Lorsch and Lawrence, "Organising for Product Innovation". Gouldner, *Patterns of Industrial Bureaucracy.* Dalton, *Men Who Manage.* Barnes, *Organizational Systems and Engineering Groups.* Udy, *Bureaucratic Elements in Organizations.*

[22] Brown and Shepard, "The Impact of Altered Objectives : Functionalism and Organizational Changes in a Research Laboratory."

[23] Guest, *Organizational Change : The Effect of Successful Leadership.*

[24] Jaques, *The Changing Culture of a Factory.*

[25] McCleery, *Policy Change in Prison Management.*

[26] Lawrence, *The Changing of Organizational Behaviour.*

CARL R. ROGERS

The Characteristics of a Helping Relationship

A DEFINITION

My INTEREST in psychotherapy has brought about in me an interest in every kind of helping relationship. By this term I mean a relationship in which at least one of the parties has the intent of promoting the growth, development, maturity, improved functioning, improved coping with life, of the other. The other, in this sense, may be one individual or a group. To put it in another way, a helping relationship might be defined as one in which one of the participants intends that there should come about, in one or both parties, more appreciation of, more expression of, more functional use of, the latent inner resources of the individual.

Now it is obvious that such a definition covers a wide range of relationships which usually are intended to facilitate growth. It would certainly include the relationship between mother and child, father and child. It would include the relationship between the physician and his patient. The relationship between teacher and pupil would often come under this definition, though some teachers would not have the promotion of growth as their intent. It includes almost all counsellor-client relationships, whether we are speaking of educational counselling, vocational counselling, or personal counselling. In this last-mentioned area it would include the wide range of relationships between

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the psychotherapist and the hospitalized psychotic, the therapist and the troubled, neurotic individual, and the relationship between the therapist and the increasing number of so-called "normal" individuals who enter therapy to improve their own functioning or accelerate their personal growth.

These are largely one-to-one relationships. But we should also think of the large number of individual-group interactions which are intended as helping relationships. Some administrators intend that their relationship to their staff groups shall be of the sort which promote growth, though other administrators would not have this purpose. The interaction between the group therapy leader and his group belongs here. So does the relationship of the community consultant to a community group. Increasingly the interaction between the industrial consultant and a management group is intended as a helping relationship. Perhaps this listing will point up the fact that a great many of the relationships in which we and others are involved fall within this category of interactions in which there is the purpose of promoting development and more mature and adequate functioning.

THE QUESTION

But what are the characteristics of those relationships which *do* help, which do facilitate growth? And at the other end of the scale is it possible to discern those characteristics which make a relationship unhelpful, even though it was the sincere intent to promote growth and development? It is to these questions, particularly the first, that I would like to turn. I most certainly do not have the answers, but I would like to take you with me over some of the paths I have explored, and to tell you where I am, as of now, in my thinking on these issues.

The Answers Given by Research

It is natural to ask first of all whether there is any empirical research which would give us an objective answer to these questions. There has not been a large amount of research in this area as yet, but what there is is stimulating and suggestive. I cannot report all of it but I would like to make a somewhat extensive sampling of the studies which have been done, and state very briefly some of the findings. In so doing, oversimplification is necessary, and I am quite aware that I am not doing full justice to the researches I am mentioning, but it may pique your curiosity enough to examine the studies themselves, if you have not already done so.

STUDIES OF ATTITUDES

Most of the studies throw light on the attitudes on the part of the helping person which make a relationship growth-promoting or growth-inhibiting. Let us look at some of these.

A careful study of parent-child relationships made some years ago by Baldwin and others (1) at the Fels Institute contains interesting evidence. Of the various clusters of parental attitudes toward children the "acceptant-democratic" seemed most growth-facilitating. Children of these parents with their warm and equalitarian attitudes showed an accelerated intellectual development (an increasing I. Q.) more originality, more emotional security and control, less excitability than children from other types of homes. Though somewhat slow initially in social development, they were, by the time they reached school age, popular, friendly, non-aggressive leaders.

Where parents' attitudes are classed as "actively rejectant" the children show a slightly decelerated intellectual development, relatively poor use of the abilities they do possess, and some lack of originality. They are emotionally unstable, rebellious, aggressive and quarrelsome. The children of parents with other attitude syndromes tend in various respects to fall in between these extremes.

I am sure that these findings do not surprise us as related to child development. I would like to suggest that they probably apply to other relationships as well, and that the counsellor or physician or administrator who is warmly emotional and expressive, respectful of the individuality of himself and of the other, and who exhibits a non-passive caring, probably facilitates self-realization much as does a parent with these attitudes.

Let me turn to another careful study in a very different area. Whitehorn and Betz (2, 16) investigated the degree of success achieved by young resident physicians in working with schizophrenic patients on a psychiatric ward. They chose for special study the seven who had been outstandingly helpful, and seven whose patients had shown the least degree of improvement. Each group had treated about 50 patients. The investigators examined all the available evidence to discover in what ways the A group (the successful group) differed from the B group. Several significant differences were found. The physicians in the A group tended to see the schizophrenic in terms of the personal meaning which various behaviors had to the patient, rather than seeing him as a case history or a descriptive diagnosis. They also tended to work toward goals which were oriented to the personality of the patient, rather than such goals as reducing the symptoms or curing the disease. It was found that the helpful physicians, in their day by day interaction, primarily made use of active personal participation

—a person to person relationship. They made less use of procedures which could be classed as "passive permissive." They were even less likely to use such procedures as interpretation, instruction or advice, or emphasis upon the practical care of the patient. Finally, they were much more likely than the B group to develop a relationship in which the patient felt trust and confidence in the physician.

Although the authors cautiously emphasize that these findings relate only to the treatment of schizophrenics, I am inclined to disagree. I suspect that similar facts would be found in a research study of almost any class of helping relationship.

Another interesting study focuses upon the way in which the person being helped perceives the relationship. Heine (10) studied individuals who had gone for psychotherapeutic help to psychoanalytic, client-centered and Adlerian therapists. Regardless of the type of therapy, these clients report similar changes in themselves. But it is their perception of the relationship which is of particular interest to us here. When asked what accounted for the changes which had occurred, they expressed some differing explanations, some depending on the orientation of the therapist. But their agreement on the major elements they had found helpful was even more significant. They indicated that these attitudinal elements in the relationship accounted for the changes which had taken place in themselves: the trust they had felt in the therapist; being understood by the therapist; the feeling of independence they had had in making choices and decisions. The therapist procedure which they had found most helpful was that the therapist clarified and openly stated feelings which the client had been approaching hazily and hesitantly.

There was also a high degree of agreement among these clients, regardless of the orientation of their therapists, as to what elements had been unhelpful in the relationship. Such therapist attitudes as lack of interest, remoteness or distance, and an over-degree of sympathy, were perceived as unhelpful. As to procedures, they had found it unhelpful when therapists had given direct specific advice regarding decisions, or had emphasized past history rather than present problems. Guiding suggestions mildly given were perceived in an intermediate range—neither clearly helpful nor unhelpful.

Fiedler, in much quoted study (7) found that expert therapists of differing orientations formed similar relationships with their clients. Less well known are the elements which characterized these relationships, differentiating them from the relationships formed by less expert therapists. These elements are: an ability to understand the client's meanings and feelings; a sensitivity to the client's attitudes; a warm interest without emotional over-involvement.

A study by Quinn (13) throws light on what is involved in understanding the client's meanings and feelings. His study is surprising in that it shows that "understanding" of the client's meanings is essentially an attitude of *desiring* to understand. Quinn presented his judges only with recorded therapist statements taken from interviews. The raters had no knowledge of what the therapist was responding to, or how the client reached to his response. Yet it was found that the degree of understanding could be judged about as well from this material as from listening to the response in context. This seems rather conclusive evidence that it is an attitude of wanting to understand which is communicated.

As to the emotional quality of the relationship, Seeman (14) found that success in psychotherapy is closely associated with a strong and growing mutual liking and respect between client and therapist.

An interesting study by Dittes (4) indicates how delicate this relationship is. Using a physiological measure, the psychogalvanic reflex, to measure the anxious or threatened or alerted reactions of the client, Dittes correlated the deviations on this measure with judge's ratings of the degree of warm acceptance and permissiveness on the part of the therapist. It was found that whenever the therapist's attitudes changed even slightly in the direction of a lesser degree of acceptance, the number of abrupt GSR deviations significantly increased. Evidently when the relationship is experienced as less acceptant the organism organizes against threat, even at the physiological level.

Without trying fully to integrate the findings from these various studies, it can at least be noted that a few things stand out. One is the fact that it is the attitudes and feelings of the therapist, rather than his theoretical orientation which is important. His procedures and techniques are less important than his attitudes. It is also worth noting that it is the way in which his attitudes and procedures are *perceived* which makes a difference to the client, and that it is this perception which, over the long run, is crucial.

"MANUFACTURED" RELATIONSHIPS

Let me turn to research of a very different sort, some of which you may find rather abhorrent, but which nevertheless has a bearing upon the nature of a facilitating relationship. These studies have to do with what we might think of as manufactured relationships.

Verplanck (15), Greenspoon (8) and others have shown that operant conditioning of verbal behavior is possible in a relationship. Very briefly, if the experimenter says "Mhm," or "Good," or nods his head after certain types of words or statements, those classes of words tend to increase because of being reinforced. It has been shown that using such procedures one can bring about increases in such diverse verbal categories as plural nouns, statements of opinion, hostile words. The implication is that by such selective reinforcement we could bring it about that the other person in the relationship would be using whatever kinds of words, and making whatever kinds of statements we had decided to reinforce.

Following still further the principles of operant conditioning as developed by Skinner and his group, Lindsley (11) has shown that a chronic schizophrenic can be placed in a "helping relationship" with a machine. The machine, somewhat like a vending machine, can be set to reward a variety of types of behaviors. Initially it simply rewards—with candy, a cigarette, or the display of a picture—the lever-pressing behavior of the patient. But it is possible to set it so that many pulls on the lever may supply a hungry kitten—visible in a separate enclosure—with a drop of milk. In this case the satisfaction is an altruistic one. Plans are being developed to reward similar social or altruistic behavior directed toward another patient, placed in the next room. The only limit to the kinds of behavior which might be rewarded lies in the deree of mechanical ingenuity of the experimenter.

Lindsley reports that in some patients there has been marked clinical improvement. Personally I cannot help but be impressed by the description of one patient who had gone from a deteriorated chronic state to being given free grounds privileges, this change being quite clearly associated with his interaction with the machine. Then the experimenter decided to study experimental extinction, which put in more personal terms means that no matter how many thousands of times the lever was pressed, no reward of any kind was forthcoming. The patient gradually regressed, grew untidy, uncommunicative, and his grounds privileges had to be revoked. This (to me) pathetic incident would seem to indicate that even in a relationship to a machine, trustworthiness is important if the relationship is to be helpful.

Still another interesting study of a manufactured relationship is being carried on by Harlow and his associates (9) this time with monkeys. Infant monkeys, removed from their mothers almost immediately after birth, are, in one phase of the experiment, presented with two objects. One might be termed the "hard mother," a sloping cylinder of wire netting, with a nipple from which the baby may feed. The other is a "soft mother," a similar cylinder made of foam rubber and terry cloth. Even when an infant gets all his food from the "hard mother" he clearly and increasingly prefers the "soft mother." Motion pictures show that he definitely "relates" to this object, playing with it, enjoying it, finding security in clinging to it when strange objects are near, and using that security as a home base for venturing into the frightening world. ,Of the many interesting and challenging implications of this study one seems reasonably clear. It is that no amount of direct food reward can take the place of certain perceived qualities which the infant appears to need and desire.

A COMPARATIVE STUDY

Let me close this wide-ranging—and perhaps perplexing—sampling of research studies with an account of an experiment conducted by Ends and Page (5). Working with hardened chronic hospitalized alcoholics who had been committed to a state hospital for 60 days, they tried three different methods of group psychotherapy. The method which they believed would be most effective was therapy based on a two-factor theory of learning; a client-centered approach was expected to be second; a psychoanalytically oriented approach was expected to be least efficient. Their results showed that the therapy based upon a learning theory approach was not only not helpful, but was somewhat deleterious. The outcomes were worse than those in the control group which had no therapy. The analytically oriented therapy produced some positive gain, and the client-centered group therapy was associated with the greatest amount of positive change. Follow-up data, extending over one and one-half years, confirmed the in-hospital findings, with the lasting improvement being greatest in the client-centered approach, next in the analytic, next the control group, and least in those handled by a learning theory approach.

As I have puzzled over this study, unusual in that the approach to which the authors were committed proved *least* effective, I find a clue, I believe, in the description of the therapy based on learning theory (12). Essentially it consisted of pointing out and labelling the behaviors which had proved unsatisfying, of exploring objectively with the client the reasons behind these behaviors; and of establishing through re-education more effective problem-solving habits. But in all of this interaction the aim was to be impersonal. The therapist "permits as little of his own personality to intrude as is humanly possible." The "therapist stresses personal anonymity in his activities, i.e., he must studiously avoid impressing the patient with his own (therapist's) individual personality characteristics." To me this seems the most likely clue to the failure of this approach, as I try to interpret the facts in the light of the other research studies. To withhold one's self as a person, and to deal with the other person as an object does not have a high probability of being helpful.

SOME COMMENTS

These then are some of the studies which throw at least a measure of light on the nature of the helping relationship. They have investigated different facets of the problem. They have approached it from very different theoretical contexts. They have used very different methods. They are not directly comparable. Yet they seem to me to point to several statements which may be made with some assurance. It seems clear that relationships which are helpful have different characteristic from relationships which are unhelpful. These differential characteristics have to do primarily with the attitudes of the helping person on the one hand, and with the perception of the relationship by the "helpee" on the other. It is equally clear that the studies thus far made do not give us any final answers as to what is a helping relationship, nor how it is to be formed.

HOW CAN I CREATE A HELPING RELATIONSHIP?

I believe each of us working in the field of human relationship has a similar problem in knowing how to use such reasearch knowledge. We cannot slavishly follow such findings in a mechanical way, or we destroy the personal qualities which these very studies show to be valuable. It seems to me that we have to use these studies, testing them against our own experience, and forming new and further personal hypotheses to use and test in our own further personal relationships.

So rather than try to tell you how you should use the findings I have presented, I should like to tell you the kind of questions which these studies and my own clinical experience raise for me, and some of the tentative and changing hypotheses which guide my behavior as I enter into what I hope may be helping relationships. Let me list a number of these questions and considerations.

1. Can I *be* in some way which will be perceived by the other person as trustworthy, as dependable or consistent in some deep sense? Both research and experience indicate that this is very important, and over the years I have found what I believe are deeper and better ways of answering this question. I used to feel that if I fulfilled all the outer conditions of trustworthiness—keeping appointments, respecting the confidential nature of the interviews, etc.—and if I acted consistently the same during the interviews, then this condition would be fulfilled. But experience drove home the fact that to act consistently acceptant, for example, if in fact I was feeling annoyed or skeptical or some other non-acceptant feeling, was certain, in the long run, to be perceived as inconsistent or untrustworthy. I have come to recognize that being trustworthy does not demand that I be rigidly consistent, but that I be dependably real. The term *congruent* is one I have used to

describe the way I would like to be. By this I mean that whatever feeling or attitude I am experiencing would be matched by my awareness of that attitude. When this is true then I am a unified or integrated person in that moment, and hence I can *be* whatever I deeply *am*. This is a reality which I find others experience as dependable.

2. A very closely related question is this. Can I be expressive enough as a person that what I am will be communicated unambiguously? I believe that most of my failures to achieve a helping relationship can be traced to unsatisfactory answers to these two questions. When I am experiencing an attitude of annoyance toward another person, but am unaware of it, then my communication contains contradictory messages. My words are giving one message, but I am also in subtle ways communicating the annoyance I feel, and this confuses the other person and makes him distrustful, though he too may be unaware of what is causing the difficulty. When, as a parent or a therapist or a teacher or an administrator I fail to listen to what is going on in me, fail because of my own defensiveness to sense my own feelings, then this kind of failure seems to result. It has made it seem to me that the most basic learning for anyone who hopes to establish any kind of helping relationship is that it is safe to be transparently real. If, in a given relationship I am reasonably congruent, if no feelings relevant to the relationship are hidden, either to me or the other person, then I can be almost sure that the relationship will be a helpful one.

One way of putting this which may seem strange to you is that if I can form a helping relationship to myself—if I can be sensitively aware of and acceptant toward my own feelings—then the likelihood is great that I can form a helping relationship toward another.

Now, acceptantly to be what I am, in this sense, and to permit this to show through to the other person, is the most difficult task I know, and one I never fully achieve. But to realize that this *is* my task has been most rewarding, because it has helped me to find what has gone wrong with interpersonal relationships which have become snarled, and to put them on a constructive track again. It has meant that if I am to facilitate the personal growth of others in relation to me, then I must grow, and while this is often painful it is also enriching.

3. A third question is : Can I let myself experience positive attitudes toward this other person—attitudes of warmth, caring, liking, interest, respect ? It is not easy. I find in myself, and feel that I often see in others, a certain amount of fear of these feelings. We are afraid that if we let ourselves freely experience these positive feelings toward another we may be trapped by them. They may lead to demands on us, or we may be disappointed in our trust, and these outcomes we fear. So as a reaction we tend to build up distance between ourselves and others —aloofness, a "professional" attitude, an impersonal relationship.

I feel quite strongly that one of the important reasons for the professionalization of every field is that it helps to keep this distance. In the clinical areas we develop elaborate diagonostic formulations, seeing the person as an object. In teaching and in administration we develop all kinds of evaluative procedures, so that again the person is perceived as an object. In these days, I believe, we can keep ourselves from experiencing the caring which would exist if we recognized the relationship as one between two persons. It is a real achievement when we can learn, even in certain relationships or at certain times in those relationships, that it is safe to care, that it is safe to relate to the other as a person for whom we have positive feelings.

4. Another question whose importance I have learned in my own experience is: Can I be strong enough as a person to be separate from the other? Can I be a sturdy respecter of my own feelings, my own needs, as well as his? Can I own, and if need be express my own feelings as something belonging to me, and separate from his feelings? Am I strong enough in my own separateness that I will not be downcast by his depression, frightened by his fear, nor engulfed by his dependency? Is my inner self hardy enough to realize that I am not destroyed by his anger, taken over by his need for dependence, nor enslaved by his love, but that I exist separate from him with feelings and rights of my own? When I can freely feel this strength of being a separate person, then I find that I can let myself go much more deeply in understanding and accepting him, because I am not fearful of losing myself.

5. The next question is closely related. Am I secure enough within myself to permit him his separateness? Can I permit him to be what he is—honest or deceitful, infantile or adult, despairing or overconfident? Can I give him the freedom to be? Or do I feel that he should follow my advice, or remain somewhat dependent on me, or mould himself after me? In this connection I think of the interesting small study by Farson (6) which found that the less well adjusted and less competent counsellor tends, to induce conformity to himself, to have clients who model themselves after him. On the other hand the better, adjusted and more competent counsellor can interact with a client through many interviews without interfering with the freedom of the client to develop a personality quite separate from that of his therapist. I should prefer to be in this latter class, whether as parent or supervisor or counsellor.

6. Another question I ask myself is, can I let myself enter fully into the world of his feelings and personal meanings, and see these as he does? Can I step into his private world so completely that I lose all desire to evaluate or judge it? Can I enter it so sensitively that I can move about in it freely? Can I sense it so accurately that I can catch

not only the meanings of his experience which are obvious to him, but those meanings which are only implicit, which he seems only dimly or as confusion? Can I extend this understanding without limit? I think of the client who said, "Whenever I find someone who understands a *part* of me at the time, then it never fails that a point is reached where I know they're *not* understanding me again. . . What I've looked for so hard is for someone to understand."

For myself I find it easier to feel this kind of understanding, and to communicate it to individual clients than to students in a class or staff members in a group in which I am involved. There is a strong temptation to set students "straight," or to point out to a staff member the errors in his thinking. Yet when I can permit myself to understand, in these situations, it is mutually rewarding. And with clients in therapy, I am often impressed with the fact that even a minimal amount of emphatic understanding—a bumbling and faulty attempt to catch the confused complexity of the client's meaning—is helpful, though there is no doubt that it is most helpful when I can see and formulate clearly the meanings in his experiencing which for him have been unclear and tangled.

7. Still another issue is whether I can be acceptant of each facet of this other person which he presents to me. Can I receive him as he is? Can I communicate this attitude? Or can I only receive him conditionally, acceptant of some aspects of his feelings and silently or openly disapproving of other aspects? It has been my experience that when my attitude is conditional, then he cannot change or grow in those respects in which I cannot fully receive him. And when—afterward and sometimes too late—I try to discover why I have been unable to accept him in every respect, I usually discover that it is because I have been frightened or threatened in myself by some aspect of his feelings. If I am to be more helpful, then I must myself grow and accept myself in these respects.

8. A very practical issue is raised by the question, can I act with sufficient sensitivity in the relationship that my behavior will not be perceived as a threat? The work we are beginning to do in studying the physiological concomitants of psychotherapy confirms the research by Dittes in indicating how easily individuals are threatened at a physiological level. The psychogalvanic reflex—the measure of skin conductance—takes a sharp dip when the therapist responds with some word which is just a little stronger than the client's feelings. And to a phrase such as "My, you *do* look upset," the needle swings almost off the paper. My desire to avoid even such minor threats is not due to a hypersensitivity about my client. It is simply due to the conviction based on experience that if I can free him as completely as possible from external threat, then he can begin to experience and to deal

with the internal feelings and conflicts which he finds threatening within himself.

9. A specific aspect of the preceding question but an important one is : Can I free him from the threat of external evaluation ? In almost every phase of our lives—at home, at school, at work—we find ourselves under the rewards and punishments of external judgments. "That's good;" "that's naughty." "That's worth an A;" "that's a failure." "That's good counselling;" "that's poor counselling." Such judgments are a part of our lives from infancy to old age. I believe they have a certain social usefulness to institutions and organizations such as schools and professions. Like everyone else I find myself all too often making such evaluations. But in my experience they do not make for personal growth, and hence I do not believe that they are a part of a helping relationship. Curiously enough a positive evaluation is as threatening in the long run as a negative one, since to inform someone that he is good implies that you also have the right to tell him he is bad. So I have come to feel that the more I can keep a relationship free of judgment and evaluation, the more this will permit the other person to reach the point where he recognizes that the locus of evaluation, the center of responsibility, lies within himself. The meaning and value of his experience is in the last analysis something which is up to him and no amount of external judgment can alter this. So I should like to work toward a relationship in which I am not, even in my own feelings, evaluating him. This I believe can set him free to be a self-responsible person.

10. One last question : Can I meet this other individual as a person who is in the process of *becoming*, or will I be bound by his past and by my past ? If, in my encounter with him, I am dealing with him as an immature child, an ignorant student, a neurotic personality, or a psychopath, each of these concepts of mine limits what he can be in the relationship. Martin Buber, the existentialist philosopher of the University of Jerusalem, has a phrase, "confirming the other," which has had meaning for me. He says, "Confirming means. . . . accepting the whole potentiality of the other. . . . I can recognize in him, know in him, the person he has been. . . *created* to become. . . I confirm him in myself, and then in him, in relation to this potentiality that. . .can now be developed, can evolve" (3). If I accept the other person as something fixed, already diagnosed and classified, already shaped by his past then I am doing my part to confirm this limited hypothesis. If I accept him as a process of becoming, then I am doing what I can to confirm or make real his potentialities.

It is at this point that I see Verplanck, Lindsley, and Skinner, working the operant conditioning, coming together with Buber, the philosopher, or even mystic. At least they come together in principle, in an odd way. If I see a relationship as only an opportunity to reinforce certain types of words or opinions in the other, then I tend to confirm him as an object—a basically mechanical, manipulable object. And if I see this as his potentiality, he tends to act in ways which support this hypothesis. If, on the other hand I see a relationship as an opportunity to "reinforce" *all* that he is, the person that he is with all his existent potentialities, then he tends to act in ways which support *this* hypothesis. I have then—to use Buber's term—confirmed him as a living person, capable of creative inner development. Personally I prefer this second type of hypothesis.

CONCLUDING COMMENTS

In the early portion of this talk I reviewed some of the contributions which research is makng to our knowledge *about* relationships. Endeavoring to keep that knowledge in mind I then took up the kind of questions which arise from an inner and subjective point of view as I enter, as a person, into relationships. If I could, in myself, answer all the questions I have raised in the affirmative, then I believe that any relationships in which I was involved would be helping relationships, would involve growth. But I cannot give a positive answer to most of these questions. I can only work in the direction of a positive answer. This has raised in my mind the strong suspicion that a helping relationship is the kind of relationship created by a person who is psychologically mature. Or to put it in another way, the degree to which I can create relationships which facilitate the growth of others as separate persons is a measure of the growth I have achieved in myself. In some respects this is a disturbing thought, but it is also a promising or challenging one. It would indicate that if I am interested in creating helping relationships I have a fascinating life-time job ahead of me, stretching and developing my potentialities in the direction of growth.

I am left with the uncomfortable thought that what I have been working out for myself in this paper may have little relationship to your interests and your work. If so, I regret it. But I am at least partially comforted by the fact that all of us who are working in the field of human relationships and trying to understand the basic orderliness of that field, are engaged in the most crucial enterprise in today's world. If we are thoughtfully trying to understand our tasks as administrators, teachers, educational counsellors, vocational counsellors, therapists, then we are working on the problem which will determine the future of this planet. For it is not upon the physical sciences that the future will depend. It is upon us who are trying to understand and deal with the interactions between human beings—who are trying to create helping relationships. So I hope that the questions I ask of myself will be of use to you in gaining understanding and perspective as you endeavour, in your way, to facilitate growth in your relationships.

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PART EIGHT

Understanding Change

Bhavnath Temple

Ajit Verma

The Onondaga Metals Company

Gopal Cotton Mills Ltd.

Ahmedabad Textile Industry's Research Association (ATIRA) (A) & (B)

CASES

Bhavnath Temple

After the country became independent in 1947 the attention of the central and provincial governments—the political and administrative arrangement in 1947—was naturally directed towards plans for all-round economic development. Even before the attainment of independence, some concerted action in the field of economic development was mooted. But efforts in this regard were naturally limited and it was a popular argument that once political power came into the hands of Indians, scope for economic development will enlarge. It was hoped that both in the field of planning and implementation economic development will become an achievable goal.

II

In the undivided Bombay province a proposal was worked out to build earthen dams across the rivers Lokmata and Sadmata in the northern part of Gujarat. The dams were calculated to impound 4700 million cu. ft. of water to develop irrigation of 92,900 acres of land in three districts. The creation of this reservoir would result in submerging

This case, Bhavnath Temple, was prepared by Professor H. N. Pathak as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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10,500 acres of land belonging to some 20 villages. Out of these, eight villages would have to be completely submerged and re-settled elsewhere. The government accordingly prepared plans to acquire land and houses in these villages and also plans to resettle the affected people. This was a difficult task because the people who were being displaced had to be provided not only with houses but also new sources of livelihood. Transferring the population of these villages had several other problems so that the authorities sometimes wondered about the feasibility of the scheme, although they finally felt that the scheme would be useful.

The reservoir was to have a catchment area of 230 sq. miles. The average rainfall in the area was 34 inches. In the original plan of the project the F.S.L. (full supply level), H.F.L. (highest flood level) and top of the dam level were fixed at R. L. (reduced level) 592.00, 596.00 and 601 feet respectively. These control levels were designed to raise the irrigation potential and thereby benefit the agricultural production in that area. The directly irrigable area from the project was to be 19,300 acres and the indirect benefit of irrigation was to flow to some 73,600 acres of additional land. The irrigation project was to yield annually Rs. 15.83 lakhs of revenue on completion (the return being counted at 4.37 per cent). The increase in agricultural production was estimated as 30,400 tons every year and it was valued at Rs. 147.74 lakhs. Even after paying compensation to the villages for the submerged land and providing for new houses was considered as direct cost to be added to the cost of constructing the dams, the government was fully convinced about the usefulness of the project. The government was therefore determined to have the dam constructed.

The three control levels of the dam (FSL, HFL and RL) calculated on the above basis would result in the submergence of the temple of Bhavnath located in the projected reservoir. This was an old temple to which the inhabitants of the region traditionally owed reverence. Population from the surrounding areas also visited the temple to worship the deities. At the annual fair the temple used to attract people from far off destinations. The temple had a dharmasala, suryakund, yagnakund, bhrugakund and a few small temples around the main temple. According to the prevailing legend the temple was connected with Brigu Rishi of ancient times.

The submergence of the temple became an important reason for the villagers against the construction of the dam and they accordingly made a strong representation to the government. The government on its part agreed to take steps to protect the temple and also to provide an all-weather access to the temple. They also agreed to provide gates on the water weir so that the flood water did not rise to endanger the temple. Additional sums were approved for the construction of these safe-guards. This seemed to satisfy the people.

Before the final proposal was formulated several meetings were held in Bombay. During these meetings it was felt that in the interest of raising irrigation potential the three control levels had to be raised so that the capacity of the reservior rises from 4,700 million cu. ft. (originally) to 5,700 million cu. ft. The FSL was to be raised to 595 ft. and the HFL to 606 ft. In terms of the cost, while the dam with old FSL at 592 ft. was to cost approximately Rs. 1.7 crores, with the raised FSL at 595 ft. it was to cost Rs. 1.9 crores. Further there was only a marginal addition to the cost of constructing the canal system. With the raised FSL the irrigation facilities would spread to a larger area and consequently the increase in agricultural production and revenues would also increase. But this would mean that the temple could not be saved. The government began to consider selecting an alternative location where the deities of the temple be shifted, observing fully all the religious rites. But the people remained adamant in their demand to save the temple.

III

The State of Bombay was bifurcated in 1960 and the newly formed State of Gujarat began to think about plans for increasing agricultural production. Their attention was drawn to the dam scheme and they thought the scheme was sound and should be implemented as soon as possible. They were inclined to accept the second alternative as recommended by the Bombay Government to shift the temple to a suitable and a generally acceptable place. But they met with the same kind of adamant oppositon.

The engineers in the Public Works Department reported the resistance they met to the Minister in-charge. The Minister convened a meeting to discuss the problem. The agenda was obvious—what course of action should the government adopt.

Ajit Verma

8th April '67

ATTENDED the convocation. Received M.B.A. degree. Feel like a bridegroom. Writing this while spending a sleepless night in the Delhi Mail, my heart beats in symphony with the beats of the wheels on the rail. . . . . .

9th April '67

Reached Delhi. Took complete rest.

10th April '67

Today is a new "land-mark" in my life. Stepped into the business world with high aspirations. Though I am not a professionally qualified Cost Accountant, I have been appointed by ABC Engineering Works, Delhi, as their Cost Accountant. That too, at Rs. 900 a month with free quarters. Thanks to IIMA ! It is a challenging assignment as they

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This case, Ajit Verma, was prepared by Professor K. Balakrishnan, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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don't have any cost accounting system. My immediate boss is the Chief Accountant (CA). Couldn't meet either the General Manager (GM) or Deputy General Manager (DGM), as both of them were abroad on a business tour. I was told that both DGM and GM are equally powerful. GM looks after all production and technical matters and DGM looks after all administrative matters, inclusive of purchases, stores, accounts, legal and personnel. Generally, neither of them interferes in the official work of the other.

11*th April* '67

Spent the day with CA. He is in his late forties and appeared to be a practical man with a lot of experience. He also had joined ABC Engineering Works recently. From 1947 to January 1967, he was working in the Accounts Department of the Garden Reach Workshops, Calcutta, in various positions. When he resigned from Garden Reach Workshops to join ABC Engineering Works he had the position of Assistant Secretary (Accounts & Finance). He was not a professionally qualified accountant.

He gave me a brief description of the ABC Engineering Works. They are basically heavy engineering fabricators and specialise in manufacturing machinery for the sugar and cement industries. They also accept orders for other types of casting, machining, and fabrication jobs, provided such jobs are sufficiently large, and provided they have adequate capacity. Their workshop is located on the outskirts of Delhi. The factory is divided into three parts: a foundry, a machine shop, and a fabrication shop.

Many parts for the sugar and cement industry have to go through all the departments, generally in the same order in which the three are listed above. Most of the orders received were either single job orders or batches of similar job orders.

The Company was of medium size and quite successful. It was established in 1940. The sales and profit figures for the last three years are as follows :

Year	*Sales* (*Rs./ Millions*)	*Profit before tax* (*Rs./ Millions*)
1966-67	38.32	3.30
1965-66	28.61	2.52
1964-65	15.31	1.50

After giving me a brief description about the Company, the CA remarked "Ajit, you will be well advised not to be over exuberant. The

Production Manager is a bit allergic to controls. Moreover, GM has high faith in this gentleman. It might be better to suggest your ideas for any kind of control system slowly but steadily. Don't try to force the pace."

12*th April* '67

CA took me to the plants and introduced me to the Plant Manager, the Planning Engineer, the Design Engineer, the Chief Inspector and the three plant Superintendents in charge of foundry, machine shop and fabrication. Plant Manager suggested that I spend a fortnight in the various sections of the plant to study the manufacturing operations and their internal problems before even thinking of introducing a cost accounting and control system.

1*st May* '67

Spent two weeks in the plant. It was a highly educative experience. Got some familiarity with their problems. CA advised me to spend two or three days each with the Legal Officer, the Purchasing Officer, the Stores Superintendent and the Financial Accountant. (They do not have a Personnel Department, recruitment for the production and technical sides was usually done by the Plant Manager and for all commercial departments by CA.)

18*th May* '67

GM & DGM returned to Delhi from Germany after signing a collaboration agreement with a German firm to set up a paper machinery manufacturing plant. (As a matter of fact, I hadn't had a chance to meet either of them earlier, as both of them were away on tour at the time of my interview. I was interviewed only by CA.) CA introduced me to both of them. GM appeared to be a pleasant person. He was in his late sixties. He didn't talk much. He wished me the best of luck.

DGM seemed a tough guy. He was younger than CA; may be in his late thirties or early forties. He advised me to keep in constant touch with him. For the next two days, he gave me a specific assignment, to study the work done by all personnel in the stores department. He added, "I know there is something wrong there. However, Mr. Ajit, I don't want you to come up with any recommendations at this stage. I want you to make a thorough study. And give me just a factual report."

22nd May '67

Submitted the report to DGM (Covering letter in Appendix A). I didn't get much co-operation from the stores personnel, but I didn't mention that in my report. A copy was given to CA. Neither of them called me to discuss the report.

23rd May '67

CA advised me to spend the next two months as a staff assistant to him. I was given a seat next to his office in the main hall and was asked to look into all his incoming and outgoing papers.

15th June '67

30th June is the "year-ending" for the Company. Every year the Company used to take the book balances according to the stores accounts for income statement purpose. DGM called CA and me and suggested that we must have a physical verification this year, and assigned the full responsibility to me. He also sent a note to all production departmental heads and Strores Superintendent to furnish all necessary assistance to me in this regard.

28th June '67

Talked with the plant superintendents and stores superintendent and finalised arrangements for stock verification. Personnel from production departments were deputed for this purpose. My role was that of a co-ordinator. Sent notes to all concerned. (A copy of the note in respect of verification of foundry materials is shown as Appendix B.)

3rd July '67

Stock verification was completed. Found large discrepancies between physical stocks and "book stocks." Started investigating the reasons for the discrepancy.

Satisfied with the security arrangements. Ruled out the possibility of theft by outside parties.

Most of the stores items are of iron and steel (plates, beams, squares, rods, pipes, etc.) and the accounts are kept in terms of weight.

We have permanent contract arrangements with a transport company to bring in the materials either from the railway station or from the godowns of the various suppliers. For the purpose of payment to them, separate records are being kept in the incoming gatekeeper's office. Gatekeeper's records are kept by actually weighing the lorries on a weigh bridge while they come in and go out. Stores personnel prepare SRMs (Stores Receipt Memos) independently, based on which payments are made. Sample checks were also made comparing the figures recorded in the gatekeeper's office with stores records and stores ledger kept in the accounts department which were posted on the basis of passed bills. Except for differences in the timing of posting these entries, no major discrepancy was noticed.

But as far as material issues were concerned the entire system appeared to be a mess. Some of the serious matters observed were as follows :

(a) Many materials are stored in the open, outside the stores, in yards, and it is possible for the production people to take away materials from these yards without raising indents. (But this should have created discrepancy only in those bulky steel items which are kept outside. The discrepancies were observed also in the case of materials kept inside the stores.)

(b) Apart from the "carbon copy" which the indentor keeps, only one copy of the stores indent is being raised. This is used in stores to post bin cards; and, in stores-accounts, to post stores ledger. There is a clerk in the Accounts Department who collects the indents from the stores ledger clerk and analyses them job-orderwise to find out how much material is being issued for various jobs. (This one-man section was known as cost accounts section and was placed under my charge.) There was a time-lag of nearly 2-3 months between the raising of an indent and its reaching the cost clerk, mainly due to sheer lethargy at various stages.

Apart from this, I accidentally found, to my horror, some old used stores indents lying in the backyard of the stores. They were not the indentor's copy. (Indentor's copy is in buff paper and the original copy is in a fairly thick paper of blue colour.) I could not make out to which department, or to what material they pertained, as all entries were faded due to exposure to sun and rain.

4th July '67

Discussed this with CA. He wondered what we could do about it. We did not have even proper storing arrangements for many materials. However, he suggested that I should study the matter in detail and put up any concrete suggestion, if I wished.

5th July '67

I was not sure how to tackle this matter. Anyhow decided to bring it to the notice of DGM. Prepared a note and submitted to CA with copy to DGM.

8th *July* '67

I didn't get any reaction from DGM. CA also didn't talk to me about it though I was working with him on various routine accounting matters all these three days.

9*th July* '67

Fine Sunday morning. But I am rather uneasy at the lack of any interesting developments in the office. I don't like to continue to work as a staff assistant to CA. I must set up my own Cost Accounts Department. From tomorrow onwards, I am going to submit a note per day on various control aspects which ultimately, I hope, will usher in the establishment of a Cost Accounts Department.

10*th July* '67

Apart from the routine work, prepared a note on control of attendance and booking of working time on job cards. The one month I spent in the plants helped me a lot in preparing these notes. (Permission was not granted by the Company to reproduce this note : case writer.)

11*th July* '67

Basically, the "labour booking system" I suggested was to facilitate the ascertainment of the time spent on various jobs by the workers. Since CA told me about DGM's reluctance to recruit more men for establishing a separate cost accounts section, I suggested that the plant superintendents could utilise their existing assistants to compile the necessary data from the daily job cards, and send a weekly return to the Cost Accounts Section.

12*th July* '67

CA told me that he had discussed the attendance control and time booking procedure suggested by me with the Plant Manager. In the light of his suggestions a new note was prepared and submitted to CA with a copy to DGM.

13*th July* '67

Again there was no reaction.

14*th July* '67

I have decided not to give up. I prepared a note on "production reporting." This is also a part of my strategy to bring in a costing system slowly and steadily. Considering the overall resistance to changes, observed from top to bottom, I do not think it feasible to suggest any comprehensive costing system.

15*th July* '67

Mr. Roy (Chief Metallurgist, Foundry) met me today in my office. He has become one of my good friends in the Company. I showed him the copies of the various notes I have preprared. He was quite enthusiastic about my attempts. In addition to being a metallurgist, he is an Industrial Engineer and has some idea about introducing a costing system for the foundry section and suggested that we can discuss it tomorrow at his house. He also invited me for lunch.

16*th July* '67

Went to Roy's house. Discussed with him the project to introduce a costing system in the foundry. Though we could not finalise a comprehensive plan, he suggested that I trigger off some action by putting up a note on the subject. In order to overcome the allergic reaction that would occur at all levels in introducing cost control systems we decided to make the note a "production reporting system."

17*th July* '67

Prepared a note to introduce a "production reporting system" in foundry and submitted to CA with copies to DGM and Foundry Superintendent. (Mr. Roy was comparatively new to the organisation, whereas the Foundry Superintendent, who was Roy's boss, was one of the "old guards," who had been with the Company for the past 15 years.)

18*th July* '67

As usual, I reached my office at 9 a.m. There was a surprise packet for me on my table. It was nothing but a bunch of the copies of all my notes submitted to DGM. Obviously, DGM has referred them back to CA, as and when I submitted them, asking for CA's comments. There was no evidence that CA had given his comments. It looked as if he had gone on accumulating them. But there was a note from CA to me on top of the bundle saying "such notes are to be submitted to me only in the first instance, and only after I give the approval they have to go forward."

I could not discuss the matter with CA as he had gone out of station the previous night. My immediate reaction was to take the bundle to DGM and discuss it with him. On second thoughts, I decided not to short-circuit CA. Came back to my quarters an hour early. I have been seriously thinking over this for the last two hours. I feel that the only line of action for me is to resign, though I have worked with these people for only three and a half months.

APPENDIX A

ABC ENGINEERING WORKS, DELHI

STORE-KEEPING PROCEDURE

DEPUTY GENERAL MANAGER

As directed, I have studied the existing stores procedure and am enclosing a note on the same.

Section "C" of the note gives the details of duties of various persons in the Stores Department, as desired.

sd/-

Dated : 22nd May 1967 Cost Accountant

Copy submitted to Chief Accountant for perusal. This note is only a factual listing and I have not made any comments on the same at this stage.

APPENDIX B

ABC ENGINEERING WORKS, DELHI

STOCK VERIFICATION OF FOUNDRY MATERIALS

STORES SUPERINTENDENT

Sub : Stock Verification of Foundry Materials

It has been decided to verify the stores items related to Foundry on 30th instant. Mr. Roy of Foundry has promised to spare the necessary men for the physical verification.

To make it a success, I suggest the following steps :

1. Please ensure that Bin Cards are there for all Foundry materials.
2. Post all indents and receipts uptodate and strike the balance as at 5 p.m. tomorrow the 29th instant.
3. Prepare two lists, one for items kept in stores and another for those kept in Foundry, noting down the description as per bin card and bin card balance as mentioned above. Please keep these lists ready, preferably in triplicate, by tomorrow afternoon. (I am sparing my cost clerk, Mr. Kotnis, also for this work.)

4. Mr. Roy's men will verify the physical stock on 30.6.67, and note down the same in the lists prepared by you. The verification lists will be signed both by Foundry and Stores people and a copy will be forwarded to Chief Accountant on 1st July early morning.
5. No issues will be effected on 30.6.67 and Foundry must arrange to collect the materials for 30.6.67 by tomorrow afternoon itself. Exceptional emergency issues will be separatel recorded, also noting down whether it was done before or after the verification.

In case of any difficulty, Chief Accountant may please be contacted.

Sd.
Cost Accountant

Dated : 28th June 1967

cc : C. A. & Dy. G. M. for information
Foundry Dept. (Attention : Mr. Roy) in confirmation of our discussions.

The Onondaga Metals Company*

THE HIRING OF WILLIAM TAYLOR**

IN AN ATTEMPT to secure employment since a recent layoff, William Taylor made an appointment to visit one of his father's friends, Mr. Norman Schermerhorn, President of Copper Works Company, Inc. During the course of the interview between the two, the president—who was most cordial—told Taylor that at present there were no openings in the company for men with his particular talents; rather, he was looking for individuals with engineering backgrounds who would be familiar with the technical work performed by the company.

As Taylor was about to leave Schermerhorn's office, the latter asked him if he knew Mr. Ralph Lea, President of Onondaga Metals. In response to Taylor's negative reply, the president asked his secretary to get Lea on the telephone for him. There followed a few minutes of conversation between the two presidents after which Taylor was directed to the Onondaga plant for an immediate interview with Lea.

During the ensuing meeting, Taylor was questioned quite thoroughly concerning his educational and business backgrounds. He was 26 years old and unmarried. He had had no experience in manufacturing, but had been fully employed as an accountant, except for the past few

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* This case, Onondaga Metals Co., was prepared by Professor Robert W. Cambreleng of the Rutgers University Graduate School of Administration.

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** Name are fictitious.

weeks, during the four years since graduation from college where his major had been industrial management. He had worked his way through his last two years of college. He was now unemployed because the company in which he had been working had been in deep financial difficulty which brought about a large number of layoffs; in fact, the firm was now in bankruptcy.

His grades in college and high school had been high enough to bring him a number of honors. During these eight years of schooling he had been an active member in two honorary scholastic societies and a fraternity, and had been engaged in such activities as debating, drama, music, social, church, and Boy Scouts; currently, his major interest lay in church affairs. He had come from a middle class family, and his father had been well known in certain business circles. Lea's impression of Taylor was that this was a young man who was personable, intelligent, able to get along with people, and with enough ego and drive to make a name for himself.

Lea paused in his questioning, studied Taylor in silence for a few moments, and then turned to gaze out the window.

Lea (turning back to Taylor): It's peculiar that you should happen to come along at this time—(speaking hesitantly and carefully)—because I have been looking for someone to assist me. Well, tell me Taylor, if you were a manufacturer who produced an assembled product, and one of the parts of that assembly was expendable in the sense that it necessarily and unavoidably wore out quickly, and if the customer knew that this costly part had to be replaced occasionally, what would you do if you realized that despite the top quality of your product—a fact recognized by customers—sales of that assembled product were declining because of the cost and inconvenience to them of that expendable part?

Taylor (without hesitation): What is the profit on the product?

Lea (giving Taylor a sharp glance): High. We are leaders in the field.

Taylor : If, as you say, the product is of recognizable top quality, the part wears unavoidably, and the profit is high, I would reduce the replacement cost of the part, even to the extent of taking a loss on it, and absorb the loss.

Lea : Why would you do that?

Taylor : Mostly out of fear of competition cutting into my market.

Lea (after a prolonged, visual examination of Taylor): All right. This is what I have in mind. I have the need here for a man who can study this type of problem, and many related ones, and come up with the correct answer. The general manager on whom I depend for this type of thing now has too much to do, particularly in purchasing. The man for this job I have in mind should be one who is willing to stick and grow with the business and who could plan on taking over some of the Manager's functions, perhaps in about a year's time. He would have to be a man upon whom I could depend implicitly. Would you be interested in such work, Taylor ?

Taylor : Definitely, yes !

Lea : (shaking his head as if he were not quite sure he was doing the right thing): Good. You're hired. My initial directions are these. Firstly, that you say nothing to the general manager about taking over any of his duties; if he should ask you about your job, tell him that you are slated for the assistant production control manager's post. Secondly, I want you to learn our manner of production by observing the men on their jobs : I want you to watch them carefully so as to learn everything they do, so that you will become thoroughly familiar with operations. Should they ask what your job is, tell them the same thing you'd tell the general manager.

I would suggest in this matter that you be careful with the operators because of an unfortunate incident caused last year by an efficiency expert I hired from a New York firm. Now, as to your salary. I'm willing to pay you $ 125 a week. Is this satisfactory ? Good, then report to me on Monday morning at 8.30.

COMPANY ORGANIZATION*

Ralph Lea, President and Secretary, and majority stockholder of Onondaga was approximately 50 years old. His company, which he had bought into a number of years before, was small in that it employed only 150 people at the plant and 25 in its sales office in New York City. The company was non-unionized, although the A.F.L.-C.I.O. had previously and recently made attempts to organize the workers. Mr. Lea was proud of the fact that his people had rejected unionization, but he was fearful that this might come about in the long run because the company, being small, could not afford to pay wages equal to those of larger concerns.

Reporting to Lea was a treasurer-auditor who had charge of corporation as well as accounting activities, a vice president and minority stockholder who was in charge of sales, a general manager who also performed the purchasing function, and a chief inspector who had been elevated in this hierarchy because of Lea's desire to stress quality control. Reporting to the general manager were the plant superintendent, a chief engineer, and a production control manager, among others. The superintendent's jurisdiction extended over a number of foremen, including the production foreman. The latter had direct charge of the shop.

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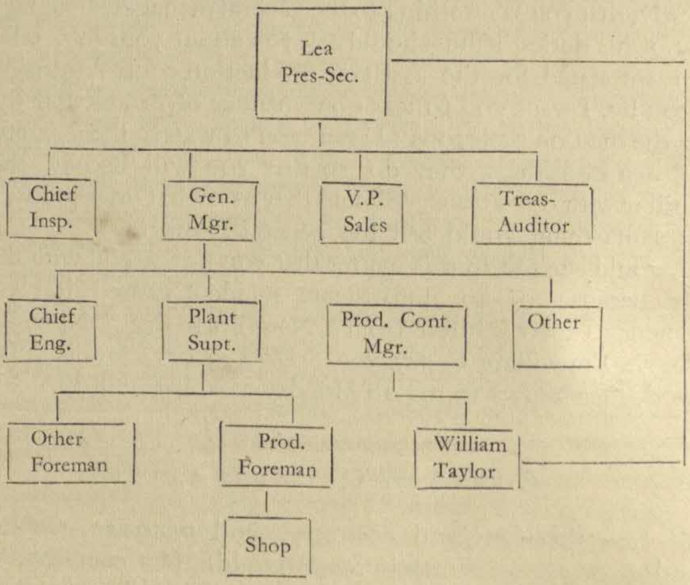
* See Figure 1.

FIGURE 1

THE ONONDAGA METALS COMPANY
ABBREVIATED ORGANIZATION CHART



At the time, 1959, the company was experiencing great demand for its products and was working at full capacity on a one-shift basis. Its operations were somewhat hand-to-mouth because of a lack of storage space for raw materials in the warehouse. Often, shipments to customers went out late due to the raw material not having arrived in time for processing, or because of production or scheduling difficulties in the shop. A new warehouse was completed about six months after Taylor's being hired.

TAYLOR'S FIRST THREE MONTHS

William Taylor reported to Mr. Lea on the following Monday morning, whereupon the latter requested him to repeat the directions he had received previously. Satisfied, Lea then called in the production control manager, Hank Drake, who had been briefed to the effect that he was to have a man to help him in his work, but a fellow who was unfamiliar with manufacturing and who would have to spend several months studying plant operations. Hank was asked to introduce Taylor to the various department heads and then to let him be on his own. The desk to which Bill Taylor was assigned was butt-to-butt with Hank's, so arranged that they faced each other; these were located just about twenty feet from Mr. Lea's office.

Thereafter, for the first three months, Bill followed the president's instructions by occupying himself solely with studying the company's mode of operation. He followed the various products from their receipt as raw materials, into process, and through to their shipment as finished products. He complemented this study by close observation of the employees on their jobs, by questioning them as to what they were doing and why, by questioning supervisors, by lending a hand at various jobs, and by assembling products on his own time. During this learning period, Taylor was closely observed by Lea who would either stop by at the former's desk to ask how things were getting along, or who would request Taylor to report to his office, this latter about once a week.

During this three-month period, Bill tried his best to win the friendship of the supervisors and workers by chatting with them and explaining that he was new to manufacturing and had to learn what was going on before he undertook production control work. Despite this effort, he realized that he was not being fully accepted by the supervisors, and was being rebuffed by the workers. The latter, for example, were evasive, terse, and would speak in undertones. On one occasion as Bill walked past a machinist, he thought he heard the expression, stool pigeon.

Inasmuch as he was distrubed by this entire situation, he had often sought the advice of the shop foreman, whom he particularly liked, with the hope that this man with 25 years experience with the company could give him some clue as to why the employees seemed to resent his presence. Invariably, the foreman said that he knew of no reason and attributed the problem to Bill's imagination. On several occasions, Taylor also spoke to the president about the matter, and was assured that the reaction was probably the result of the workers' experience with the efficiency expert of the previous year, and would iron itself out in time. Because it was rumored that Lea had men in the shop who were willing to pass on information concerning worker attitudes (by phone at night), Taylor felt reassured by Lea's statements. Employees did not know for certain who these men were, but judged them to be from among the oldtimers, some of whom the company was obviously carrying.

THE FOLLOWING SIX MONTHS

During the six months following the learning period, Taylor found that most of his assignments came directly from the president and occasionally from the general manager, rather than from the production control manager. For example, the president requested him to make a complete study of economic lot sizes for all the company's products and, thereafter, to construct a production control schedule based on a Gantt chart so as to enable control of the job lots put into production by the control manager and the shop foreman. In effect, this meant a production control system which would be more complicated than the one currently in use.

The present method which had been devised and operated by the production control manager was this, in general. Each lot size was arbitrarily set at 1,000 units; the operations to be performed thereon and the time these would take were available from a card file supplied by engineering. Combining these data, the control manager would prepare two production orders for each lot to go into production. The original order would go to the timekeeper, an accountant whose desk was located in the office next to a small dispensing window facing into the shop, who, upon request of a worker or a foreman, would clock the orders when passing them out to either. When the orders were returned after completion of the operations, he would clock them in. These originals would then be picked up in batches periodically throughout the day by the control manager who would then again initiate the cycle, as necessary.

The duplicate production order was retained by the control manager, and would be filed by him in a due date box. If the original were not returned in accordance with that file, the manager would then go into the shop for the purpose of locating and expediting the lot in question.

In the final analysis Taylor's dual assignment would result in changes in quantities, sequence, timing, etc.

Other jobs assigned to Taylor by the president were these. (1) A study of toolroom operations, and the installation of a system designed to control the time and money spent on each task by the tool and die makers. (2) An analysis of the tool crib, and the establishing of a control procedure to reduce tool theft. (3) Inventory taking. (4) Statistical work not connected directly with production. (5) Numerous special studies involving report writing with recommendations. During the period of doing this work, Taylor would be approached at his desk by Mr. Lea at least once a week, and would be invited into the latter's office to give a progress report.

In almost all of his work, Taylor was obliged to maintain an intimate and inquiring contact with the workers, supervisors, and executives. For example, on one occasion in the assembly room he approached one of the more friendly oldtimers to ask why he, and others, always mixed screws, nuts, bolts, springs, and washers all together in one pile on the bench, whereas, were they kept separate so that they could be more easily picked up, the assemblers could turn out many more units of product per day. The worker remarked that he was well aware of that fact, but if his output rose too high, management would think of some way to cut the rate on the job.

Bill then asked the assembler whether he would be willing to change his methods if management would agree not to change the rate, to which the employee replied that he would give the matter serious consideration based on such a promise. Bill, to pursue the issue further, then went to the general manager who enthusiastically endorsed Bill's proposal, but who stated just as Bill, somewhat gratified, was about to leave his office, "We'll let it ride for about a year, then we'll find some reason for cutting the rate." Bill let the matter drop. On the whole, the general manager was somewhat brusque with Taylor and on one occasion accused him of being arrogant.

Bill's relationship with the producion control manager was fairly amicable, although Hank was often non-committal, was seemingly upset by the nature of Bill's desk work, and sometimes became quite angry when Bill necessarily had to refuse to obey instructions about some phase of production control because of pressure from Mr. Lea to complete a special assignment quickly.

Bill's contacts with the plant superintendent were infrequent but seemingly pleasant. As to the foremen, he had had a few run-ins with them because of the inquiring nature of his work. These were usually terminated with words from Taylor that Mr. Lea wanted the information, so what was he supposed to do? One of the run-ins was quite serious, with Taylor and one of the assembly foremen in angry disagreement which resulted, however, in a mutual understanding and respect when the supervisor finally said after wagging his head hopelessly, "My God, Bill, I'm glad that I don't have your job!" Undoubtedly, a number of these conflicts were brought to Mr. Lea's attention during the weekly executive-supervisory meetings which he chaired, and to which Taylor was not invited.

The production foreman was the friendliest of them all although Bill was aware that some of the workers disliked him intensely: the rumor was that he played favorites. True, the foreman did look askance at a production control Gantt-type schedule which Bill had hung in the former's office, stating that it was a prettily colored chart containing nothing that he did not already know; nevertheless, Bill spotted him studying lot progress on it many times. This supervisor, as everybody knew, had a colossal memory concerning tools, dies, and parts which the company had made over the years and for which blueprints had long ago been destroyed. He was invaluable in recreating those items with his own hands, but had a very poor memory when it came to assisting the engineering department in re-establishing specifications for them.

The attitude of the workers had changed somewhat for the worse, much to Taylor's regret. For instance, when the tool and die makers learned that he had been asked to time them for the purpose of establishing standards, they would often not reply to questions asked of them, feigning not to hear. Or, they would tell him to find out for himself. As stated previously, when he brought such worker reaction to the attention of the president and the shop foreman, he was always assuaged.

Toward the end of Taylor's ninth month with the company, Mr. Lea asked him to come to his office. There, the president spoke of a customer who had complained to him personally because Onondaga was often failing to meet delivery dates; he had threatened to cancel his orders unless the situation improved. Lea wanted to know why the new production control schedule had not bettered what had been a previously prevailing situation before erection of the new warehouse. In reply, Taylor said that he had frequently heard from the sales department on a similar score, had pushed material through process as much as he could, and had often recommended the relatively expensive procedure of shipping rush orders parcel post. As to the schedule, however, it had helped to improve conditions and there was nothing wrong with it, for it was geared to operating times established by engineering and to existing machine capacities. He added that production could not be increased without purchasing newer or additional machinery, by working overtime, or by adding a second shift.

In further defence of the schedule, Taylor stated that he had personally been following many of the various lots through process and on a number of occasions had experienced difficulty in locating them even after several tours of the shop, either because there was no production order with them for identification purposes, or because they would be buried under a pallet, or elsewhere. This same type of situation had happened so many times that he had begun to wonder what was going on. By observation as he went through the plant, and by examination of returned production orders, he had come to realize that the lots were being deliberately hidden by the operators. Furthermore, he had concluded that the men who hid their work were often in possession of two production order cards at the same time, both of which were either clocked out at the end of the day, or one of which was clocked out then with the other being punched out at the start of work the next morning.

For example, Taylor continued, at 8 a.m. a machinist would pick up an order card from the timekeeper for a job scheduled to be finished at 4.30 that afternoon. Presumably, because the rate on the job was loose he could complete it earlier, say, at 2.30, thereby saving two hours.

Then, at 2.30 he would hide the finished lot and would get another card without returning the first. Apparently, the second job for which he would ask was one which was scheduled for two hours and which could be completed by 4.30. He would then return his cards as previously indicated. Taylor added that he had actually observed an operator turn in one card at 4.30 and then go to the end of the line of machinists to return the other; obviously, the worker did this so as to make himself less conspicuous to the busy timekeeper.

Taylor went on to say that he had heard rumors about some kind of a schedule which the men had improvised which covered a two-week span; in his interest to find out what it was all about, he had inquired of the men who claimed they did not know what he was talking about. Clearly, however, the men were playing loose rates against fair or tight ones; furthermore, they were attempting to hide the loose rates by returning order cards in accordance with scheduled rather than actual times and, hence, this disguised overlapping could result in a greater take-home pay.

Taylor concluded by saying that if the workers would turn in their completed work instead of hiding it, a number of accumulated hours could be saved, especially on scheduled long runs. In turn, this would lead to earlier painting, assemblying, and shipping.

Very much disturbed by Taylor's observations, the president consulted with the timekeeper who disclaimed knowledge of the problem, but who was able to substantiate Taylor's comments after study of his payroll records. Thereupon, Lea issued an order, signed by himself, which was to be posted throughout the shop; (1) Production order cards had to remain with the jobs for identification purposes. (2) The production foreman had to sign each card upon completion of a job. (3) No worker could receive a new production card without first having returned the signed one already in his possession, except by a written note from the foreman. (4) Any employee found to have two or more order cards in his possession at the same time would be subject to disciplinary action, including discharge for continued malconduct. The foreman was still allowed to withdraw cards at his discretion.

TAYLOR'S DISCHARGE

Approximately ten days after the regulation was posted, Taylor was endeavoring to find a lot in process in order to expedite it as quickly as possible. He had made three tours of the shop without success when his attention was aroused by the close way in which a drill press operator was glancing at him. The machinist had previously claimed ignorance concerning the material even though he should have been working on it at this time. Suspicious, Taylor decided to examine more closely a punch press located nearby which had been ripped down for repairs and whose parts were along side covered by a tarpaulin. Removing some tools from the top of the canvas and examining beneath it, he found the lot of material which he had been seeking. He noticed that it lacked identification and had gone through the drilling operation.

Therefore he returned to the operator once again in order to question him regarding the job; the latter still disclaimed knowing about it. However, Taylor had noted when on his way over to the man that he had made an involuntary gesture toward his left hand shirt pocket and, in fact, there was now protruding from it a card which resembled a production order. Knowing that the operator already had an order in the card rack on the machine, and suspecting this to be a second, Taylor grimly reached out and snatched the card from the worker's shirt pocket. It proved to be the card for which he had been looking. Taylor asked, "You have two cards in your possession ?," and when the man admitted his guilt, Taylor returned the card to him and left without further comment. The production order had not been signed by the foreman.

Taylor returned to his desk to explain the situation to the production control manager, Hank. In concluding his comments, he said that he hesitated to tell the plant superintendent about the matter because he would get the employee into trouble and would be called a squealer for having done so. His relationships with the workers, he felt, were already too poor, but the practice had to be stopped, the foreman was apparently not watching his men, so what did the control manager think should be done ? Whereupon, the manager jumped up from his chair, saying, "I'll damn well fix it !," and left the office to report the matter to the plant superintendent.

The following morning, the plant superintendent told Mr. Lea that Taylor had snatched the production order card from the worker's shirt pocket and that something should be done to prevent further invasion of one's privacy and violation of one's person. Based on the superintendent's story, and others which had been brought to his attention, Lea wondered whether he should ask Taylor to submit his resignation.

At 5 P.M., the day after the snatching episode occurred, Taylor was called into the president's office where he was asked to recapitulate the event of the previous day. This Taylor did in its entirety. Lea remarked that the superintendent had stated, after discussion with the drill press operator, that Taylor had ripped the card from the worker's pocket. This Taylor agreed he had done; he had snatched it, yes, because he had felt that the worker would have refused to give it to him.

Mr. Ralph Lea, with a decision obviously previously arrived at, reached into his desk and withdrew a check for two week's termination pay; this he handed to Bill Taylor, with his discharge effective immediately. The president then said that Taylor had been causing a considerable amount of labor unrest because of his mode of prying and arrogant attitude, and that this was dangerous in an open shop such as existed at Onondaga. Also, he felt it to have been his own fault for having hired a young man rather than another more experienced in shop conditions. He suggested that Taylor seek a job in some industrial engineering firm, possibly in New York City. His parting words were, "Someday, Taylor, you will thank me for this."

As Taylor, shocked by the suddenness of it all, was packing his belongings, Lea's secretary came over to his desk and stated that she had known that he was to be discharged because she had prepared the separation check. She added that neither she nor the others in the office when they heard about it the next day would ever believe that the fault had been his; rather, that several people in management's ranks had been out to get him. She urged that he should not lose contact with the friends he had made in the company.

Later, through one of these friends, Taylor heard scuttlebutt to the effect that subsequent investigation by the president indicated that the production foreman had been deeply involved in supplying workers —his favorites, so it was suggested—with second production order cards. This he had done by getting the cards himself from the timekeeper, or by authorizing their distribution through signed notes presented by the workers. When confronted with the evidence leading up to Taylor's discharge, he admitted his guilt, but pleaded that the men he had helped were those in financial difficulties requiring assistance. Also, the practice had previously been going on for so long a time, even without his help, that it was now a matter of shop routine which could not be broken without great friction. In fact, the men were now thinking more than ever of inviting the union into the shop.

At the time of this writing, some months later, Taylor's informant had been unable to discover what action had been taken against the foreman, but he did know that the drill press operator had been largely exonerated because of the foreman's involvement. Also, both were still working in their former jobs.

As of one year later, Bill Taylor was most interested to read in the newspaper that the Onondaga Metals Company had gone A.F.L.-C.I.O.

Gopal Cotton Mills, Ltd.

In 1952 Mr. Ramachandra Shah, the managing director of Gopal Cotton Mills, went to Japan on a trade misson. On his way back to India, he visited several South East Asian countries to make a survey of Indian textiles. In the course of talking with many merchants and customers, he learned that they preferred Japanese products to Indian ones because of their faultless weave. Customers were not interested in buying Indian cloth which, being manufactured on non-automatic looms, frequently contained flaws. Mr. Shah decided therefore to introduce automatic looms in his mills.

On his return to Ranchipur, Mr. Shah drew up a plan to build a new loomshed for automatic looms to replace one of the existing loomsheds. The obsolete shed was hot, humid, poorly illuminated and very noisy. The machinery was old and a large number of breakdowns and accidents took place. He consulted the weaving superintendent about the plan. Later he called in Mr. Shankarlal, the supervisor in the shed which was to be replaced, and explained the new system to him. He also told Mr. Shankarlal that he would be considered for promotion as soon as operations started in the new automatic shed.

The loomshed to be replaced was the smallest of the three in the company's compound. It had 100 looms running on two shifts. All the weavers working in this shed belonged to the same community; they were Gujarati Patels. In line with tradition, each jobber (mecha-

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nic or first line supervisor) selected his own workers. So a jobber brought workers from the rural areas of his own community. All the weavers in Mr. Shankarlal's department lived in the same locality, and almost all of them had been working in the shed for at least 10 years, some for as long as 25 years. Mr. Shankarlal himself also belonged to the Patel community. Although he lived in a different part of the city, he joined the workers on festive occasions, when they held sing-songs or performed dramas. Weavers from the other sheds did not join in; they came from different communities.

The old loomshed was hot, humid, poorly illuminated and very noisy. The machinery was old and a large number of breakdowns and accidents took place. But the workers were proud of the loomshed. They boasted that even with such old looms their production was higher than that of the other sheds with newer looms. Each worker minded two looms and was paid according to his output. He had no helper to assist. When he had to leave his looms running while he went to bring bobbins, carry cloth, go to the washroom, drink water or talk with people, his neighbours would look after them. In fact, the workers took turns to go out for a break, and a group could always be found outside, away from the noise, talking, smoking and drinking water. Although management was not in favour of this practice, it had survived all attempts to stop it.

Mr. Shankarlal made it a practice to make two rounds in the loomshed every day and to talk with any worker in difficulty. Several times each day he stood outside the door of the shed and chatted with workers who were coming in or going out. Many weavers consulted him about their personal problems. When the Managing Director or the superintendent was approaching on his rounds, Mr. Shankarlal passed the word to the workers so that they could go back to their looms in time. When any of his workers were called to the folding department to explain bad work, Mr. Shankarlal went along to plead for them and to minimize the fines imposed on them by the folding clerks.

The erection of the new loomshed was completed in September, 1953. It had up-to-date lighting and humidification equipment, and comfortable wash rooms and toilets inside the building. The machinery consisted of looms driven by separate motors and was spaced more generously than in the old shed. The plan specified one weaver to eight looms. Each weaver would have the assistance of a helper to take care of all the auxiliary work so that he would not have to leave the looms at all. The helpers were to be paid less than the weaver's pay. All workers from the old shed were needed in the new shed, so that the question of retrenchment did not arise. They would be either weavers or helpers. Those having the longest service with the company would be weavers. These points were all covered by an agreement which Mr. Shah made with the labour union to which 60 per cent of the workers in the shed belonged.

Mr. Shankarlal went around and talked about the new plan to the workers individually and in small groups. He told them about the better working conditions and assured them that their earnings would soon be higher than before. He also told them that helpers would be given weavers' positions just as soon as the older weavers retired. But over a whole week devoted to convincing the workers of the advantages of working in the new shed, only 16 workers agreed. This number was too small to start the new section. For two more weeks Mr. Shankarlal kept up his efforts to persuade the workers but still got no greater response.

At the end of this period, Mr. Shankarlal was called to the director's office and asked to explain the situation. Mr. Shah told him that the workers would be given an ultimatum if they were not willing to abide by the agreement made by the company and the union leaders, new workers would be recruited.

Back in the shed, Mr. Shankarlal went around again and told the workers of the director's decision. As far as he could judge, the workers were adamant in their refusal and unafraid at the threat of losing their jobs. They hardly stayed to listen to what he had to say. They raised no questions and were altogether silent in his presence. This silence became characteristic of the relationship between the workers and Mr. Shankarlal. They no longer came to him with their problems; and if they saw him outside the shed they would either stay away from him or go inside.

About a week after Mr. Shah had spoken to him, Mr. Shankarlal called a meeting of the workers and gave a talk on the importance of the new shed. He told them that foreign competition forced the company to have automatic looms whether they liked it or not; that they should give the new idea a try. He finished his talk by asking them for any questions that they might have about any aspect of the change. Nobody spoke and the meeting broke up. The next day Mr. Shankarlal put up a notice signed by Mr. Shah. It stated the terms of the agreement with the union and set a limit of seven days for the workers to agree to work the new looms.

During that week the workers were persuaded by the union leaders to work in the new shed and they finally agreed. At the same time, the company proceeded with all arrangements to start the new section.

On the eighth day after the notice was put up, work started in the new section. The changes went according to plan. Mr. Shankarlal was promoted to Assistant Weaving Master and put in charge of the new section. He was satisfied to notice that production climbed steadily. Within two months the shed had reached the target of 88 per cent efficiency. Mr. Shankarlal then turned his attention to learning more about the automatic looms. He cut down his rounds in the loomshed and spent as much time as he could with the expert technician from the firm that had supplied the looms.

But an increasing amount of his time was taken up with listening to complaints from the workers. The complaints were mostly about bad working conditions : that the walking distance between looms was too great, that the yarn breakage rate was too high for automatic looms, that the light was too glaring, that the toilet and drinking place should not be in the same room and so on. Production fell to 84 per cent efficiency. Mr. Shankarlal made it a practice to check the production of individual workers and to call to his office those whose production was lowest. He asked them to explain the decline in production. In reply the workers stated more grievances.

One day, three representatives of the workers came to his office. They told him that the Mills were getting enormous profit from the automatic loom weaving, but that the workers were not getting a proper share of it. Mr. Shankarlal replied that the company had spent a very large sum of money in installing the new shed and that it could not pay higher wages. The representatives left without argument. A week later the workers went on strike. When Mr. Shankarlal arrived at the mill at 7.00 S., as usual, he found all the workers entering the old shed. Mr. Shankarlal saw that the management had removed the unused looms from the old shed. The workers sat down on the empty floor, each where his loom had been and refused to move. They said that the old loomshed should have been kept intact so that, if they wanted to, they could have gone back to their old jobs. They threatened not to leave the floor until all the old looms had been replaced.

At the end of third day of the strike, Mr. Shankarlal fell ill. He complained that the humidity of the loomshed had affected his lungs and took a month's leave. When Mr. Shankarlal returned to work after a month, he learned that the strike had been ended through the persuasion of the union leaders and with the assurance from the company of a higher rate of pay for the workers. But production was down to 80 per cent and at this level the earnings of the workers were less than before, in spite of the rise in rate.

One week later, Mr. Shah replaced Mr. Shankarlal as Assistant Weaving Master. The new man was a technical graduate with four year's experience of automatic loom weaving. Mr. Shankarlal was offered a new job : Assistant Weaving Master in charge of "Labour Control" for all three sheds. He readily accepted it and so assumed charge of hiring and firing workers, taking disciplinary action, carrying out drives for higher production, and keeping the superintendent and the director generally informed on all labour problems.

Ahmedabad Textile Industry's Research Association (ATIRA) (A) & (B)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION (A)

IN 1944, THE GOVERNMENT OF INDIA set up an Industrial Research Planning Committee, under the Chairmanship of Sir R. K. Shanmugham Chetty, with the objective of encouraging industrial research. This Committee visited Ahmedabad (a brief note about Ahmedabad and its textile industry is given in the Appendix) to sound the textile mill-owners regarding the measures Government could take to promote research activities in the industry. The Ahmedabad Millowners' Associaton informed this Committee that they would undertake the organisation of a co-operative research association provided that adequate assistance was forthcoming from the Government.

The Report of the Industrial Research Planning Committee published in 1945 strongly recommended to Government that one of the most effective ways of encouraging industrial research in India would be for the Government to amend the Income Tax Act, so that contributions from manufacturing organisations towards the capital and recurring expenditure of recognised research institutions could be debited to current expenditure. In 1947, the Indian Income Tax Act was so amended.

*This case, Ahmedabad Textile Industry's Research Association (A) and (B), was prepared by Professor Kamla Chowdhry, as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright © 1970 by the Indian Institute of Management, Ahmedabad. Used by specific permission.

In December 1947, the Ahmedabad Textile Industry's Research Association (ATIRA) was registered. There were 71 textile units, members of the Ahmedabad Millowners' Association which became the founder-members and together contributed a little over Rupees 5 million towards the establishment of ATIRA. The Government of India made a contribution of Rupees 1.9 million and promised to bear for the first 5 years, half the recurring expenditure of the Association up to a maximum of Rupees 1.5 lakhs in any particular year.

Vikram Sarabhai,[1] while still a student at Cambridge University, was requested by Shri Kasturbhai Lalbhai[2] to study the constitution and organisation of some research institutions in the U. K. and Europe so as to provide a basis for the structure of the proposed textile research association at Ahmedabad. Sarabhai was about 27 years old and was at the stage of completing his Ph.D. in Physics. On his return Shri Kasturbhai Lalbhai invited him to be a member of the sub-committee to consider plans for the proposed research organisation. The subcommittee consisted of Shri Kasturbhai Lalbhai, Shri Amritlal Hargovinddas, and Dr. Vikram Sarabhai. Dr. Sarabhai drafted for the subcommittee a Memorandum of association for ATIRA that was largely modelled on the British Research Association's constitution. The main features of the model that were considered desirable were its cooperative structure, the co-option of scientists on the Council of Administration, and the fact that majority control did not rest with the millowners.

Shri Ambalal Sarabhai (father of Dr. Vikram Sarabhai), a leading millowner in Ahmedabad wrote to the Ahmedabad Millowners' Association that his group of mills, Calico and Jubilee, would be willing to be members of the proposed research association if the scope of work included not only scientific and technical research but also work relating to the human factor and the introduction of social change. The Ahmedabad Millowners Association readily agreed to the suggestion. The objectives of ATIRA were stated as :

(*i*) to apply the scientific method to the problem of industy

(*ii*) to conduct operational, applied and fundamental research to improve understanding of men, materials and processes in industry

(*iii*) to implement results of scientific research and technological developments.

SELECTION OF A DIRECTOR

Shri Kasturbhai Lalbhai was elected the first Chairman of the Council of Administration in 1947, and he continued in this position till 1963. Shri Kasturbhai Lalbhai with the concurrence of his Council asked Dr. Vikram Sarabhai to act as the Honorary Director until a full time Director was found. Dr. Sarabhai at this stage was about 28 years of age, with no previous experience in textiles, although he belonged to a leading millowner's family in Ahmedabad.

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[1] Dr. Sarabhai is the son of a leading millowner family in Ahmedabad.

[2] One of the leading, seniormost, and respected members among the millowner community in Ahmedabad.

The Council appointed a sub-committee of three members to consider the broad plans for ATIRA. The members of the sub-committee were Mr. L. B., a millowner; Dr. K. G., a co-opted Chemist, and Dr. Vikram Sarabhai. The sub-committee suggested that the laboratory should be built around three men each of whom should be a distinguished scientist and should have considerable research experience. The specialisations of the three should be (i) Organic Chemistry, (ii) Inorganic or Physical Chemistry and (iii) Physics. The Directorship was to be offered to anyone of three keymen.

It was decided that the post of the Director and of other key scientists should be advertised in journals and papers in the U. K., Europe, and the U.S.A. The kind of a person the Council was looking for can be seen from the advertisment issued :

> The Director of the Association—
>
> Salary 1800-90-2250 pound sterling per annum. Qualifications. Exceptional academic qualifications with a minimum of ten years experience as leader of research team actively engaged on problems connected with one or more of the following : Structure and properties of natural/artificial fibres; processing and manufacture of textiles; dyeing and finishing of textiles; properties of fabrics. Outstanding personal record of research essential.

A consulting organisation in the U.S.A. and the British Council in the U. K. was also asked to help in locating a suitable person. A Selection Committee in the U. K. was appointed to consider and recommend applications for a suitable Director.

The response to the advertisement in general as considered poor. There were three scientists who were being considered for the post, of a Director—a Physicist from the U.K. and two Chemists from the U.S.A. The salary that the American candidates wanted was about twice as much as the U. K. candidate. In each case, however, the candidates expected twice as much salary as they were getting in their back-home situation. In the meeting of the Council, Dr. K. G., the co-opted Chemist, strongly opposed the selection of the Physicist from the U. K. on the ground that "in his opinon a Physcist should not be eligible for the Directorship of ATIRA." It was, however, pointed out by Dr. Sarabhai that the head of the Shirley Institute (a textile research Institute in Manchestor), the head of the Department of Textile Chemistry in Leeds, and Prof. Schwartz of MIT were all Physicists. The opinion of the Director of the Shirley Institute regarding the British candidate was sought. His opinion was that Dr. W., though a distinguished scientist, may not be suitable in terms of ATIRA's needs.

Thus, after a year's unsuccessful, search in India and abroad for distinguished scientists with experience, Dr. Sarabhai agreed to continue as a part time and Hon. Director. He decided to recruit young Indian scientists with a distinguished academic record ignoring the requirements of experience. In revising the recruitment policy and in considering the applications received, Dr. Sarabhai's premise was that if the scientific method had to be introduced then scientists trained in research methodology were likely to produce more rapid progress than technologists with experience in textile industy.

THE EARLY RESEARCH GROUP

In 1949, Dr. Sarabhai appointed four Indian scientists, three fresh from Universities abroad—a Mathematical Statistician with a Ph.D. from Manchester, a Social Psychologist from the University of Michigan, a Chemist from Princeton University, and a Physical Chemist, the only person who was older and with experience in a technical institution in Bombay. The first three appointments were not based on applications received through advertisements, but through a series of ad hoc circumstances.

An office of three rooms was hired as a base from which to work. At this stage there was neither a library nor a laboratory so that the first year of the research group was largely spent in the mills trying to understand textile technology and getting acquainted with people at the mills and their problems. The lack of previous experience compelled the research workers to go into the fields to 'learn' and to 'understand'. In the first year, therefore, the attitude of research workers was to 'receive' and of the environment to 'teach' and to 'give'. Some idea of this early phase of learning and the kind of relationships that evolved can be seen from the following account of the social psychologist's early experiences in the textile industry :

> In the Raipur Mills, the Spinning and Weaving Master and sometimes their Assistants would show and explain to me the process of converting cotton to cloth. In my rounds, I often stopped and talked to the workers to understand their problems and feelings concerning work and working conditions. Before leaving the mill I would discuss my impressions with the Managing Agent who would listen with interest and amusement.

The first project I undertook was measuring output in 15-minute intervals in the winding department to see production curve (and fatigue) over the shift. I persuaded the Managing Agent to supply a free cup of tea to a 'cotrol' group of winders to study the effect of rest-pauses and tea on productivity. The winders were told this was a temporary measure, and the experiment was undertaken by everyone with great good humour. The winders would share their cup of tea with their neighbours (in a saucer) and the experiment did not 'prove' anything. But in the process of the study, the workers and myself became friendly. I would discuss little bits of news I collected from the workers with the Managing Agent. Some of the technicians invited me to share their afternoon meal and the Mill Agent took an especially kindly interest.

The Labour Union Office was open in the evenings and I would spend many evenings listening to the kind of grievances the workers brought to the Union, and in exchanging general experiences with the Union officials. They told me personal accounts of Mahatma Gandhi's historic role in the first strike, their respect and admiration for the leadership provided by Anasuyaben Sarabhai and Shankerlal Banker. I would tell them about the Western Electric experiments, the work of Likert concerning 'Satisfaction, Productivity, and Morale'. To them the scientific work I discussed was validation of intuitive judgments they had long held—and now they believed the scientific method could prove to the Millowners' Association the points of view they liked to advocate.

There wasn't much to do in Ahmedabad in the evenings, and many lonely evenings were spent in the welcome warmth afforded by the Labour Union people.

The other research workers had similar experiences both at mills that provided them with their initial training and with significant bodies like the Millowners' Association, the Technicians' Associaton, the Medical Association, etc.

Dr. Sarabhai as a part-time Director left the day-to-day running of ATIRA largely to the group of four research workers. They discussed among themselves their mill experience, their proposed work, budgets, personnel requirements, etc. The quality of relationships and the interaction developed helped them to 'grow up' together.

An idea of the mutual help and support they received from each other can be seen from the following example. In the textile industry one of the significant skills of a Weaving Master is his ability to prepare the right size mixture of sizing yarn before it went to the loom for weaving, The Chemists of ATIRA developed a sizing mixture, and showed both by laboratory and mill tests that the formulae suggested for sizing mixtures could improve weaving efficiency. The more these chemists tried to prove by lucid and irrefutable logic, the more resistance they encountered from the Weaving Masters. When they discussed their frustrations, confusion, and anger concerning their mill experiences with others in the laboratory, others tried to understand and discuss with them the 'why' of these experiences. During these discussions it emerged that what the Weaving Masters, perhaps in fact, were resisting was that their market value would decrease if the mystique about sizing was reduced to a simple laboratory formulae.

Dr. Sarabhai's role in relation to the research workers was to permit them to move in directions that made sense to them and helped them to find appropriate mills and appropriate sanctions from the Managing Agents for their experimental work.

Some idea of the growth of ATIRA in the early phases (1949-1956) in which Dr. Sarabhai and the early 4—6 research workers played an active role can be seen from the following figures.

	1949-50	1956-57	1965-66
Membership	71	94	114
Revenue Budget (in lakhs)	Rs.1.00	Rs.10.00	Rs.16.58
Scientific, Administrative, and other Staff	30	206	255
Publications	—	10	10
Consulting Reports	—	71	85
Research Projects in Operation	10	17	17

The early growth and success of ATIRA is especially significant in the context of the scientific and managerial milieu of the Ahmedabad textile industry. Thus, at the time ATIRA was established, in the majority of the mills there were no Quality Control techniques, few laboratories for testing and control of yarn and chemicals, and no training programmes. The technical departments were staffed by 'technicians' who had either a Certificate or a Diploma in textiles, very few indeed, had a graduate degree. The managerial positions were held generally by members of the entrepreneur family. There were some managers amongst the younger generation of millowners who studied abroad but because they were young they were also low in the decision-making hierarchy. Thus, although the industry offered tremendous scope and challenge for improvement, it was also discouraging in terms of the research worker establishing a 'dialogue' with the decision-makers for introducing new methods and functions.

It is interesting to note that in general the mills selected for the early experimental work were also those where there were young Managing Agents, many of whom had gone to the same or similar Universities abroad as the research workers. It was through these young

Managing Agents that the research workers were able to find opportunities for experimental work and trying out new ideas.

THE YOUNG MANAGING AGENTS

As mentioned earlier the management of the textile mills was through the Managing Agency system. This meant that the top positions were occupied by family members. Depending on the size of the extended family there was generally a proliferation of managerial jobs.

How did this younger generation of managing agents, especially those who had acquired some technical or managerial training find more meaningful roles for themselves ? The early work of ATIRA created new functions and new roles. Thus, the statistician's work pointed to the need of establishing Quality Control Departments, the chemist and the physicist's work to the need of Chemical and Physical Testing Laboratories, and the work of the psychologist to supervisory training programmes and new managerial styles. Many of the younger Managing Agents took responsibility for these new functions and became the links between the senior family members and the ATIRA workers. This identifiable group of young Managing Agents besides work relationships had social and informal relationship with Dr. Sarabhai and with the ATIRA research workers. Thus, they took an active part in the various meetings arranged to discuss ATIRA's work at the Millowners' Association, at the Technicians' Association, and in the many informal gatherings arranged at each other's homes.

In communicating the work of the research workers new channels of communication were established. Thus there were meetings organised for a group of six to eight mills to discuss ATIRA projects. There were groups of ten Weaving Masters, Spinning Masters, Labour Officers, etc., invited to ATIRA for special discussions. There were new Associations formed like the Statistical Quality Control Association, Training within Industry Association, and so on. The tradition of secrecy that prevailed in the mills was broken down to some extent by these meetings. There was a much greater sharing of problems however reluctantly and inadequately shared. New routes were established for those who were ready and able to seek new identities.

APPENDIX

AHMEDABAD AND THE TEXTILE INDUSTRY

Ahmedabad is situated on the banks of the river Sabarmati, about 300 miles north of Bombay. Its textile industry is over 100 years old. The first textile mill was started by Ranchhodlal Chhotalal, the machinery for which was transported from Cambay over the backs of camels. There are about 74 textile mills in Ahmedabad. The financing of these mills when they were started was by 'deposits' by people. The people of Ahmedabad, preferred to put their money as 'deposits' with people whom they knew and trusted rather than in the banks.

The growth and success of the textile industry in Ahmedabad has been ascribed "to the enterprise of the early millowners and to their tenacity in the face of difficulties." The quality of tenacity and initiative of people is reflected in the legend concerning the beginnings of Ahmedabad. The story goes that Sultan Ahmed Shah came to the ancient city of Ashawal in 1411. The river Sabarmati was infested with ferocious rabbits who defied and chased the hunting dogs. Sultan Ahmed Shah felt that if the place could breed such rabbits it was worth developing for the virtues it will inculcate in the people.

The old wall surrounding the city built by Sultan Ahmed Shah still stands in many places. Besides the city's old monuments, Ahmedabad has experimented with very modern architecture. Both Kasturbhai Lalbhai and the Sarabhais have played an important part in bringing famous architects to Ahmedabad. The Municipal museum and the Millowners' Association were designed by Le Corbusier, the campus of the Indian Institute of Management by Louis Kahn. There are other examples of modern buildings—ATIRA, B. M. Institute, National Institute of Design, School of Architecture, Indology Institute, and so on.

In the medieval heyday, Ahmedabad and its suburbs had a prosperous population of 8,00,000. By the time the British arrived in 1818, soon after the Maratha invasion, this had shrunk to 80,000. War time expansion of the textile industry attracted large numbers of workers from different parts of India. After Independence and partition, with the influx of the refugees the population in 1950 increased to about a million. It is now about 1.6 million.

There are about 150 thousand workers in the textile industry. The other parts of the population are traders, millowners, and to a small extent the professional group.

There is a tradition of co-operation among the people of Ahmedabad. There are examples of co-operation evident in the traditional Mahajans, or trade guilds. Ranchhodlal, the first textile entrepreneur in Ahmedabad, used to preside over the opening of every new textile mill in Ahmedabad and assisted generally the newcomers to the industry. The textile industry of Ahmedabad was also known for its conservatism. The Indian Tariff Board report of 1932 on the textile industry "praised the Ahmedabad methods of finance through the deposit system and through large investments by the agency firm, but noted that while encouraging honesty and careful attention to finance, such practices also encouraged conservatism. In some plants, at least, the traditions of conservative financial backing inhibited progressive innovation."

As Spodek[1] mentioned in his study of Ahmedabad, "paradoxically conservatism crippled some firms, the new pioneering efforts of other Ahmedabad mills, especially Calico Mills, brought Ahmedabad to the forefront of the Indian industry. Ambalal Sarabhai, as chief managing agent and great grandson of the founder of the company, introduced the innovations. Although personally reticent and aloof, Sarabhai has a reputation for being progressive, businesslike, anxious to exploit new ideas, and with his amazingly accomplished family, highly cultured. That he has left Jainism and that he, as many people say, "does not believe in charity," evoke a variety of comments. In fact, Ambalal has given considerable sums of money to educational and cultural institutions in Ahmedabad and throughout India. His support for Gandhi's ashram at the time the Mahatma was scorned for admitting *Harijans* is legendary."

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[1] Howard Spodek, "The 'Manchesterisation' of Ahmedabad," *Economic Weekly*, Vol. 8, No. 11, March 13, 1965.

The social status of individuals in Ahmedabad is in relation to their position in the textile industry. Pioneers and owners of large mills or groups of mills have more status than owners of smaller units. There is a wide gap between the status and the living standards of millowners and the technician group in industry. There is hardly any social or informal contact between the 'millowners' and the 'technicians'.

The 'elites' in Ahmedabad are those connected with the textile industry. The University teachers live an existence apart from those connected with the textile industry. The 'intelligensia' do not seem to figure in the status hierarchy of the community, and as such did not seem to play any significant part in the modernisation process—in evolving or influencing attitudes and values related to the scientific method.

The management of the mills was through the managing agency system. For our purposes the significant aspect of the system was that all top positions were occupied by family members. The heads of production and finishing departments are technical people, referred to in the industry as technicians. The technicians remained technicians and very rarely indeed are given management responsibility. In fact, it was stated that if a Spinning or a Weaving Master was to become a Manager, he would interfere in the workings of the Department. On the other hand, the family members have only managerial positions, never direct responsibility for a technological department. Depending on the size of the family for whom jobs had to be provided there was a proliferation of 'managerial' jobs. In such circumstances, the younger members of the family have a hard time finding a meaningful role for themselves. On the one hand, there is the territory of the technicians, and on the other hand, managerial territory reserved for senior family members, leaving the younger family members to either find themselves in overlapping jobs, or to search for some niche for themselves.

The Textile Labour Association was started by Anasuyaben Sarabhai around 1918 with the support and help of Mahatma Gandhi. The rules that Mahatma Gandhi laid down during the first strike that Anasuyaben organised at a time when her brother Ambalal Sarabhai was the President of the Millowners' Association were :

Never resort to violence
Never molest blacklegs
Never depend on alms
Keep firm, no matter how long the strike continues.

The strike was finally settled by accepting the principle of arbitration.

The Textile Labour Association has departments dealing with industrial complaints, municipal affairs, village development, counselling in family affairs, education, and runs co-operative banks and insurance schemes. Its public relations department is primarily concerned with propaganda for the principles and teachings of Gandhiji.

It was in this context of the textile industry and the social factors of Ahmedabad that ATIRA was established. And it is in this context that problems of social and technological change have to be viewed.

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION (B)

ORGANISATION AND ADMINISTRATION

IN THIS CASE the organisation structure and administrative practices as they evolved during the early years of ATIRA are discussed.

COUNCIL OF ADMINISTRATION

The Memorandum of Association mentioned that "the Council of Administration shall consist of 7 elected members including the Director of Research and the Secretary of the Association who shall be ex-officio members. The Council shall further co-opt three scientific or technical persons as members, and there shall be three members nominated by the Government of India.

The composition of the Council members in terms of the background was 6 millowners from the textile industry, 5 outstanding scientists, 1 member representing Finance Ministry, and 1 member representing knowledge of labour in the textile industry.

One of the earliest tasks of the Council was to establish a broad research programme, on the one hand, and to plan the capital and recurring expenditure necessary for carrying it out, on the other hand.

In 1948, the Council of Administration had appointed a Committee of three members to work out the organisation of ATIRA. The Council had also asked a firm of industrial consultants in the U.S.A to conduct a survey of U.S.A. textile research laboratories to determine the organisation, scope of work, buildings, etc., for ATIRA on the basis of similar laboratories in the U.S.A. The consulting firm was also asked to recommend names of distinguished and experienced scientists for the post of Director. In the meantime, Dr. Vikram Sarabhai, who had recently returned from Cambridge after obtaining a Ph. D. in Nuclear Physics, was asked to act as the honorary Director.

The organisation planned by the sub-committee of the Council envisaged a Director, a Deputy Director, Secretary and Departmental Heads. The Director and the Deputy Director were to be distinguished scientists, a Physicist or a Chemist, with a minimum of 10 years of experience. It was stated that if the Director was a Physicist, then the Deputy Director should be a Chemist, and vice versa. The Secretary and the head of the Technology Department were to be technologists with many years of experience in the textile industry. The Secretary was to be in charge of administration and liaison with mills. The position of the Secretary in terms of the salary scales was next to the

Director, and higher than the scientific staff, that is, the Deputy Director and Departmental Heads.

This was the plan. Advertisements were issued in foreign journals and Indian newspapers. Suggestions for applications were invited from foreign consultants, universities and research institutions. The results of these endeavours, which engaged the attention of the Council and of the Honorary Director during the first year of ATIRA's existence, were not fruitful. The foreign scientists that the Council invited were unable to accept the invitation, and those that were willing to come were not found suitable in terms of ATIRA's needs.

The early organisation of ATIRA consisted of the Honorary and part-time Director, the four research workers and the Office Superintendent. It might be worth pointing out that this organisation was substantially different from the one that the sub-committee had planned. Although all the four research workers were considered departmental heads, they were appointed in different grades, one as a Senior Scientific Officer, two as Research Associates, and one as an Assistant Director. Organisationally, all four were treated on par. This group of four research workers along with the Honorary Director acted as an informal committee to discuss all aspects of the functioning of ATIRA—research projects, budgets, personnel, liaison, selection, junior promotion, administration, etc. After a few years all were promoted to the same level, namely, Assistant Directors. ATIRA's organisation grew and expanded as the research workers grew and developed.

Dr. Sarabhai's recruitment policy, supported by the Council, was that vacancies should not be filled unless a suitable person was found. The method of setting up a laboratory by first drawing up a plan on the basis of similar laboratories abroad, and then filling these vacancies of divisions, departments and sections by advertisements was abandoned when it became evident that suitable persons were not available. Under the circumstances, Dr. Sarabhai decided to ignore the planned organisation structure, start the laboratory with well-trained persons with no experience and then provided them time and opportunities for development.

About the time ATIRA was established, the Council of Scientific and Industrial Research (CSIR) was busy establishing a number of national laboratories and central research institutes. It might be useful to compare the early beginnings of ATIRA with those of other CSIR laboratories. Bhabha[1] has discussed the methods and somewhat disappointing achievements of CSIR as follows :

> All these laboratories were brought into existence (by CSIR) in the same way. A Planning Officer was appointed for planning the work and building of each laboratory. The plan was usually drawn

up on the basis of the work of similar laboratories abroad, divided into divisions and sections, and an estimate of the staff required made on this basis.

An attempt to fill the posts was then made on the basis of advertisements. While this method of setting up a laboratory might give reasonable satisfactory results in a developed country in which science is already an important activity and a large number of scientists already exist in the universities and in other public and private laboratories and research institutes, it has serious disadvantages in a country in which organised science is still in its infancy and the number of available outstanding scientists limited. It either results in an outstanding scientist being taken away from a university or another research institute, or it results in a mediocre one, satisfying the so-called minimum requirements, being appointed to posts requiring originaliiy, initiative and leadership. As we all know the so-called minimum qualifications laid down for a post have little meaning in a research institute, and usually results in the floor becoming the ceiling.

ATIRA in its first year seemed to follow some of the same steps as described above, namely, planned the scope of work and the organisation structure on the basis of similar laboratories abroad. But here there was one essential difference. Instead of a Planning Officer from government, a young scientist was doing the initial planning. And when it became evident that 'suitable' persons with research experience were not available, the 'floor did not become the ceiling.' A completely new approach became necessary and the organisation and administrative practices that followed had to be 'congruent' with the new approach. The 'congruency' meant that with new and inexperienced persons hierarchical levels could not be maintained among the members of this group; that growing and developing together meant administrative practices that permitted joint discussion and decision-making; that learning and working together meant that a 'culture' developed in which young scientists felt more comfortable than older, experienced persons, so that the second and third round of recruitment was also of young persons.

The pattern of most national research laboratories in India is to have a Director, one Deputy Director, several Assistant Directors, and many Senior and Junior Scientific Officers. In ATIRA, however, a departure was made from this system. With the growth and contribution of the research workers, the organisation chart was revised, instead of the Deputy Director's post, four were instituted—two were promoted from the first group of research workers and two who had joined a few years

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[1] Bhabha, H.J., *Science and the Problems of Development* (Bombay : Hind Kitab Press), 1966.

later. The significant aspect of this change was that the organisation chart did not determine vacancies, recruitment and promotion, but that the merit and the maturity of the research workers determined the organisation chart.

In ATIRA, each senior research worker developed his own area of work. There was complete freedom of choice regarding projects, the attention and time given to liaison and implementation work, attending professional meetings, publications, etc. The staff and budget in each division depended to a large extent on the requirements of the division, and on funds that each research worker was able to generate from the mills.

Regarding 'administration,' the early day-to-day administrative work in ATIRA was shared and handled by the research workers with the assistance of an Office Superintendent. Although in the early organisation plan there was the post of a Secretary (a senior post next to the Director), whose role was to undertake administration and liaison with the mills, this appointment was not made till 4 years after the starting of the laboratory. In the meantime the basic ground work for the administration and liaison functions was worked out by the research workers. The first Secretary appointed was a technologist, about 50-55 years of age, and with many years of experience in the mills. In general he found it difficult to work in the established culture of ATIRA, and he left after two years. The second Secretary appointed also left after two years. The appointment of the Secretary was at least two hierarchical levels above the research workers. In attempting to administer the laboratory, the tendency was to 'control' the research workers, or so the research workers felt.

The organisaton structure of ATIRA, as it evolved by 1956, is shown in Exhibit I.

The organisation structure was built according to the development of its research workers. Functions were either integrated or differentiated depending on the growth and the maturity of the persons. And administrative practices too were evolved according to the needs of research as determined by the research workers themselves.

Dr. Sarabhai's management style was to provide freedom of choice regarding work, and control to be exercised largely through discussions among the research workers themselves. In discussing his philosophy of management, Dr. Sarabhai said : "The concept of 'mutuality' as used by Erikson[1] has great meaning for me. 'Mutuality' is important not

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[1] Erik H. Erikson, *Insight and Responsibility*, (New York, W. W. Norton & Co.), 1965.

Excerpts on 'mutuality' taken from Erikson's book *Insight and Responsibility*. "I would call mutuality a relationship in which partners depend on each other for the development of their respective strengths. . . The truly worthwhile acts enhance a mutuality between the doer and the other—a mutuality which strengthens the doer even as it strengthens the other. . . (Mutuality) would say that it is best to do to another what will strengthen you only when international aid is involved, when collaborations are involved, but in our various relationships with people."

1956-57 marked the "changing of gears" in ATIRA's development. In 1956, Dr. W., a scientist from Princeton's Textile Research Laboratory, came as Director of ATIRA under the U. S. Technical Assistance Programme. About the same time, Dr. T. S. Subramanian was appointed as Director-designate. The Council had suggested that Dr. W. should act as the Director for the first year, and as a Consultant to Dr. Subramanian, the second year.

Dr. W.'s main efforts during his first year were to streamline the organisation and administration of research. Major organisational changes were made—there was redistribution of work between the Physics and Physical Chemistry Division and the Chemistry Division; the Liaison and Technical Divisions were combined. Certain so-called routine applications of yarn and chemical testing work, and the workload studies were transferred from the research divisions to the Liaison and Technical Division. Further, an attempt was made to put the Statistics Division under the Human Relations Division. But because of the strong protest of the Head of the Statistics Division, who resigned, this move was dropped.

Another organisational innovation was the introduction of a Research Co-ordination Panel. The functions of the Research Co-ordination Panel were "to study various project proposals and progress reports and to assist and advise project leaders and the Director in planning future work." Progress reports were to be submitted in forms specially designed for the purpose. In order to rationalise and control the time of research workers, each one was asked to submit monthly reports as to the distribution of his time relating to research, administration, visitors, liaison visits, writing of reports, etc.

The 1957-58 report of Dr. W. to the Council said: "Organisationally steady progress had been maintained in the streamlining of both administrative and research machinery. . . Research effort did not grow in 1957-58 as it should have, largely because of difficulties of staffing. . . "

"ATIRA's income and expenditure were about 15% higher than in the preceding year, the increase being mainly for technical services mentioned above."

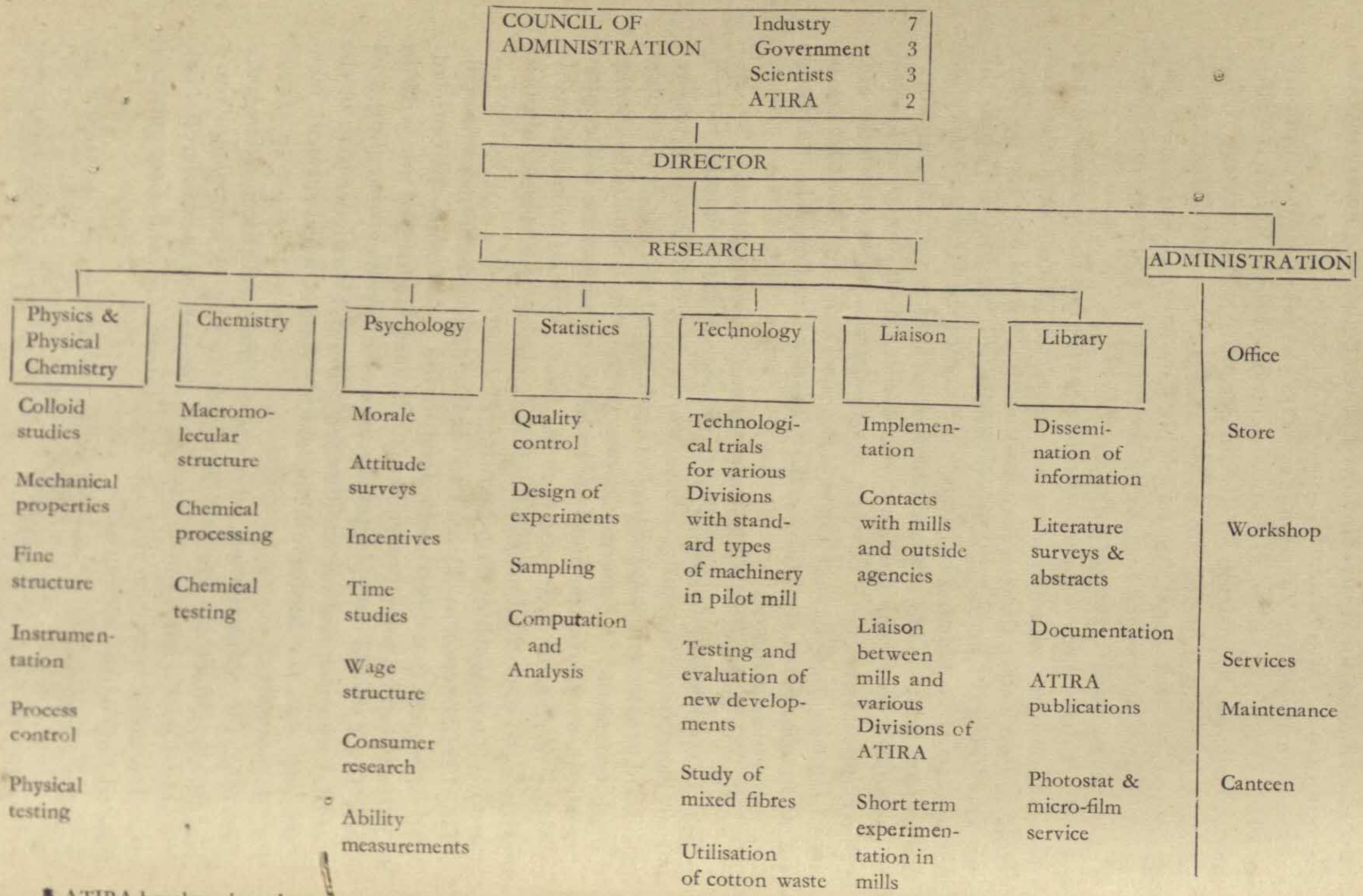
In 1958, Dr. Subramanian, who was till then the Director-designate, became the Director. He had observed the new developments introduced by Dr. W., and their impact on the morale of the research workers. He undid some of the changes introduced and also generally relaxed the control measures.

even as it will strengthen him—that is, what will develop his best potentials even as it develops your own. Another way of stating mutuality is that a person would so act as to treat humanity whether in his person or in another, always as an end, and never as only a means."

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION (B)

EXHIBIT I

ORGANIZATION STRUCTURE OF ATIRA IN 1956*



COUNCIL OF ADMINISTRATION	
Industry	7
Government	3
Scientists	3
ATIRA	2

DIRECTOR

RESEARCH

Physics & Physical Chemistry	Chemistry	Psychology	Statistics	Technology	Liaison	Library
Colloid studies Mechanical properties Fine structure Instrumentation Process control Physical testing	Macromolecular structure Chemical processing Chemical testing	Morale Attitude surveys Incentives Time studies Wage structure Consumer research Ability measurements	Quality control Design of experiments Sampling Computation and Analysis	Technological trials for various Divisions with standard types of machinery in pilot mill Testing and evaluation of new developments Study of mixed fibres Utilisation of cotton waste	Implementation Contacts with mills and outside agencies Liaison between mills and various Divisions of ATIRA Short term experimentation in mills	Dissemination of information Literature surveys & abstracts Documentation ATIRA publications Photostat & micro-film service

ADMINISTRATION
Office
Store
Workshop
Services
Maintenance
Canteen

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* ATIRA brochure issued on the occasion of the opening ceremony of ATIRA Laboratories by Shri Jawaharlal Nehru, April 10, 1954.

LIST OF READINGS

Page
1. Anderson, John., *Giving and Receiving Feedback* 172
2. Bennis, Warren, G., and Shepard, Herbert, A., *A Theory of Group Development.* 232
3. Berlew, David, E., *Establishing an Identity* 37
4. Chowdhry, Kamla, *Research Findings in Small Groups* 221
5. — — —, *Organisational Change as a Generational Problem* 592
6. — — —, *Development of a Practitioner and the Case Method* 7
7. — — —, and Sarabhai, Vikram, *Organisation for Developmental Tasks : Atomic Energy Commission of India* 424
8. — — —, *Social and Cultural Factors in Management Development* 520
9. Coffey, Robert, E., *Territory, Maps and Cases* 14
10. Dalton, Gene, W., Barnes, B., Louis, and Zaleznik, Abraham, *Approaches to Organizational Change* 603
11. Dunphy, Dexter, *A Three-Dimensional System for the Analysis of Interaction in Primary Groups* 258
12. Hagen, Everett, E., *How Economic Growth Begins : A Theory of Social Change* 577
13. Kakar, Sudhir, *Authority Patterns and Subordinate Behaviour in Indian Organizations* 481
14. Kubie, Lawrence, S., *Some Unsolved Problems of the Scientific Career* 56
15. Lombard, George, F. F., *Self-awareness and the Scientific Method* 24
16. McGregor, Douglas and Knickerbocker, Irving, *Union-Management Co-Operation: A Psychological Analysis.* 313
17. Miller, Eric, J., *Technology, Territory, and Time* 387
18. Rice, A.K., *Task and Work Group Organization* 379
19. Rogers, Carl. R., *The Characteristics of a Helping Relationship* 611
20. — — —, and Roethlisberger, F. J., *Barriers and Gateways to Communication.* 141
21. Sheth, N. R., *Society and Industrial Work in India : A Case Study* 498
22. Walton, Richard., and Dutton, John, M., *The Management of Interdepartmental Conflict : A Model and Review* 293
23. Zaleznik, Abraham, *The Dynamics of Subordinacy* 153
24. — — —, Christensen, C. R. and Roethlisberger, F. J. *Motivation and Management* 75

LIST OF CASES

Page

1. Ashok Rajguru 85
2. Ajit Verma 630
3. Alpana Chemicals (A)—(C) 555
4. Ahmedabad Textile Industry's Research Association (ATIRA) (A) & (B) 654
5. Atlas Corporation 567
6. Bhavnath Temple 627
7. Blackman-Dodds 199
8. ECIL: An Organization in Transition 455
9. Exercise: Intergroup Conflict Resolution 375
10. Exercise: Group Task 286
11. Frederick Winslow Taylor 106
12. Group Work on a Marketing Project 279
13. Ganesh Mills (A) 369
14. Gobardhone Bonamali Bandhopadhya Co. (P) Ltd. 548
15. Gopal Cotton Mills Ltd. 650
16. Mr. Hart and Bing 183
17. Haig Chemical Co. (A) 337
18. Kannan 126
19. Metal Co. of India (MECO) (C) 187
20. Metal Co. of India (MECO) (D) 537
21. Management Analysis Group 356
22. The Onondaga Metals Co. 639
23. Organisational Choice at Hindustan Lever 467
24. Mr. Shekhar 203
25. Superior Slate Quarry (A)—(D) 447
26. Uttara Mills (C). 271

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